California's Adolescent Sibling Pregnancy Prevention Program: Evaluating the Impact of Pregnancy Prevention Services to the Siblings of Pregnant and Parenting Teens

Final Report Submitted to

The Maternal and Child Health Branch
California Department of Health Services

by

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Re: State Contract Number #96-27072 **Report Released March 2001**

Table of Contents

Executive Summary

This report presents an evaluation of California's Adolescent Sibling Pregnancy Prevention Program (ASPPP). The ASPPP is a statewide pregnancy prevention program started in 1996 that serves the siblings of pregnant and parenting teens. All clients in ASPPP are the siblings of clients in California's Adolescent Family Life Program (AFLP) or Cal-Learn program. This sibling population was targeted for service because of their known high risk for adolescent pregnancy and parenting.

The program utilizes a variety of approaches to prevent pregnancy and pregnancy-risk behaviors, including case management, group services, improving self-esteem, encouraging teens to stay in school or return to school, providing access to needed health and reproductive services, providing teens with the skills and knowledge needed to make healthy lifestyle choices, and promoting open and healthy communication with parents and adults. From its inception to May 2000, the program has served approximately 3400 clients at 44 sites across California. Clients are from all racial/ethnic backgrounds and between 11 and 17 years of age.

The evaluation sample was recruited from 16 program sites and included 1594 subjects, 1011 of whom were program clients (63%) and 583 of whom received no systematic services and comprised the comparison group (37%). All comparison group subjects were also the siblings of pregnant and parenting teens. The evaluation sample was 60% female, predominantly Hispanic-Latino (70%), and an average age of 13.6 years at pre-test. The evaluation design involved a pre-test and a 9-month subsequent post-test. Eighty percent of subjects participated in the post-test (or 1270 individuals). Subjects were an average age of 14.5 years at post-test.

Evaluation findings revealed several favorable outcomes for program clients relative to comparison group subjects. (All findings controlled for differences in youth background characteristics between the program group and comparison group found at pre-test; e.g., group differences in age, race/ethnicity, etc.)

- Significantly **fewer program clients experienced a pregnancy (2.7%) during the evaluation period than comparison group subjects (5.3%).** When considering females only, **the pregnancy rate in the program group (4%) was about half of that as females in the comparison group, of whom 7.5% became pregnant**.

- For individuals who became pregnant or caused a pregnancy, **age at pregnancy was slightly older for program clients (15.7 years) than for comparison group subjects (15.3 years).**

- When individuals who had a pregnancy scare were combined with individuals who had a definite pregnancy, **program clients were half as likely as comparison group subjects to have a definite or possible pregnancy during the program period.** The rates were 3.2% and 6.4% for the program and comparison groups, respectively. In addition, a quarter of program clients were age 14 or younger at a definite or possible pregnancy, whereas more than one-third of comparison group subjects were age 14 or younger at a definite or possible pregnancy.

One important goal of the ASPPP is to delay the onset of sexual intercourse behavior for youth.

- In addressing this goal**, fewer females in the program group lost their virginity (11%) during the evaluation period than females in the comparison group (18%).**

- **Program clients who received additional services outside of ASPPP** during the evaluation period (e.g., services received in schools, the YMCA, Girls and Boys Clubs, etc.) had especially favorable outcomes.

For example, program clients who received additional non-ASPPP services had more positive school attitudes and more favorable perceptions of the importance of going to college than program clients who did not receive outside services. In addition, program clients who received additional non-ASPPP services had significantly stronger intentions to be abstinent, less frequent school problems, less frequent problem behaviors overall, and had fewer sexual partners than program clients who did not receive outside services or comparison group subjects.

- In terms of youth's attitudes and expectations, **the program appears to have been slightly more advantageous for females than males.** For example, at post-test, females in the program group had significantly stronger intentions to be abstinent, were significantly more willing to wait until they are older to have sex, and engaged in significantly less gang activity than females in the comparison group. In contrast, males in the program group experienced slight declines in their attitudes toward school and their self-esteem across the evaluation period, whereas males in the comparison group showed increases in these areas across time.

- When considering the services program clients received, **more hours of case management were strongly associated with a lower likelihood of experiencing a pregnancy.** Sexually active program clients who received over 20 hours of case management were four times less likely to become pregnant or cause a pregnancy (5.6%) than sexually active comparison group subjects (19.4%), and three times less likely than sexually active program clients who received less than 10 hours of case management to become pregnant or cause a pregnancy (14.3%).

- Case management services were also associated with **significant increases in the use of effective (as opposed to noneffective) methods of birth control** for sexually active program clients.

- While case management services were strongly associated with pregnancy prevention and increased use of effective birth control methods**, group services were particularly effective at delaying youth's onset of sexual relations.** Specifically:

  Only **7% of program clients who received over 20 hours of group services** lost their virginity during the evaluation period, compared to 13% of program clients who received less than 10 hours of group services, **and 18% of comparison group** subjects who lost their virginity across the evaluation period.

- Amount and type of service were related to many favorable changes in clients' attitudes and behaviors. For example, hours spent in group services and in recreational and community-service activities (much of which overlapped) were associated with an increase in client's intentions to abstain from sex in the near future. In addition, time spent on psychosocial skills was associated with a reduced likelihood of losing one's virginity across the program period and increases in clients' perceptions that they would <u>not</u> have sex in the near future or as a teen.

- In an effort to examine **individual differences in the effectiveness of the various services** offered as part of this program, several characteristics of the youth served (e.g., age, gender, race/ethnicity) **and of the program site** (e.g., the type of agency delivering the services) were examined. Findings revealed that the following groups experienced significantly more favorable change within the following domains across the program period:

  - Younger clients experienced large increases in parent-teen communication;
  - Older clients had significant decreases in problem behaviors and gang involvement;
  - Female clients experienced increases in favorable school attitudes and self-esteem;
  - Male clients reported significant increases in their consistency of contraceptive use;
  - Hispanic clients had significant increases in their perceptions of the hardships associated with early parenting, and
  - African American clients experienced the largest reductions in hitting and fighting behaviors across the program period relative to the other racial/ethnic groups studied.

  When examining site patronage (or type of agency delivering the program):

  - Clients served through health departments were most likely to show increases in parent-teen communication and were least likely to lose their virginity from pre-test to post-test.
  - Clients served through social service agencies were most likely to experience increases in their ease of refusing sexual relations and refusing drugs, while
  - Clients served through school-based sites were most likely to yield decreases in delinquent-type behavior (such as hitting, fighting, and being stopped by the police).

  Where services were delivered was also associated with some indices of client change, with clients served at the agency office (as opposed to in the client's home or at a community site) were most likely to increase their perceptions about the likelihood of graduating high school.

In summary, and noting the strengths and limitations of this evaluation study, it appears that the ASPPP was effective at reducing the adolescent pregnancy rate and several pregnancy-risk behaviors within this high-risk sample of siblings of pregnant and parenting teens.

- Two-thirds of clients liked this special sibling program "very much" (the highest possible rating), and 91% of clients rated their satisfaction with the program as "good" or "excellent." Eighty-six percent of clients agreed that the program helped them "see that it's a good idea to wait until I'm older to get pregnant," and 85% of clients felt that they were actually much more likely to wait until they were older to get pregnant.

- Females indicated greater program satisfaction and more positive change as a result of their participation in the program than males. High program satisfaction correlated with many favorable outcomes, including a significantly reduced likelihood of becoming pregnant.

Acknowledgements

We would like to express our appreciation to several individuals who provided invaluable assistance throughout the course of this evaluation. Dr. Terrence Smith, former Chief, Program Policy Section, Maternal and Child Health (MCH) Branch, and Ms. Jacquelyn Ward, R.N., former Chief of the Office of Child and Adolescent Health, MCH Branch, provided strong support from the inception of this project. David Reynen, M.P.H., and Mark Branagh, of Branagh Information Group, provided much needed data on all program clients in an efficient and timely manner. We would also like to thank Dr. Gilberto Chavez, Chief of the MCH Branch, who provided general direction in his former capacity as Chief of the Epidemiology and Evaluation Section, as well as valuable critical feedback on manuscript development, and Dr. Anand Chabra, Director of Maternal, Child, and Adolescent Health in San Mateo County, for facilitating the initiation and coordination of our work on this contract.

We are also very appreciative of a grant received from the Office of Assistant Secretary for Planning and Evaluation (Office of Human Services Policy, Division of Children and Youth Policy) to augment the core evaluation. These funds boosted subject follow-up rates and helped ensure a strong impact evaluation.

This evaluation would not have been possible without the cooperation, commitment, and tremendous effort put forth by the directors and staff at the evaluation sites. They dutifully followed rigorous protocols in data collection and participated in lengthy interviews about program implementation issues. All project directors provided valuable input and feedback throughout this evaluation, and the dedication of these individuals throughout all phases of this evaluation was essential. We are extremely grateful to the following individuals and their colleagues:

- Maria Ramos and Andrea Willis, East Bay Perinatal Council
- Rosanna Aguayo-Garcia and Delia Lopez, Fresno County Human Services System
- Bill Phelps, Clinica Sierra Vista
- Esther Rodriguez and Susan Elizabeth, Kings Community Action Organization, Inc.
- Emily Lloyd, Liz Herrera, and Sabina Mayo-Smith, El Nido Family Centers
- Gabriele Burkard, Foothill Family Service
- Alan Phillips and Lorrie Fredrickson, Silver Springs High School
- Gail Dratch, Giselle Rocha, and Diana Robles, Orange County Health Care Agency
- Dr. Eileen Taw and Linda Gort of Riverside County Dept. of Public Health and
- Jim McGuire, Children's Home Society
- Claire Pisor, Sutter Center for Women's Health
- Hazel Welborne, Sharon Weremiuk, Melanie LaMountain, and Lacreshia Lee, San Diego Adolescent Pregnancy and Parenting Program, San Diego Unified School District
- Charlene Clemens and Joan Pezanoski, Family Service Agency of San Francisco
- Lani Schiff-Ross, San Joaquin County Public Health Services
- Irene Vega, San Luis Obispo County Health Agency
- Dolores Alvarado and Jeannette Ferris, Santa Clara County Department of Public Health
- Lynn McKibbin and Alison Hayes, Santa Cruz County Health Services Agency
- Pam Thayer, Northern Valley Catholic Social Service
- Pauline Richardson, Sonoma County Health Department
- Elissa Padilla and Sheri Jefferis, Tulare County Health and Human Services Agency
- Nikki Steele, Ventura County Health Care Agency

Throughout this project period, the evaluation has benefited from the commitment of excellent staff at the UCSD Medical Center. Mr. Arnold Josafat, the project's Administrative Assistant, not only directed all administrative functions, but served as a most reliable liaison to the original 17 evaluation sites. He carefully monitored all of the evaluation data and oversaw all data management activities. We also thank Ms. Jean Parks for her help with data coding and data entry.

Finally, we would like to acknowledge the ASPPP clients, the comparison group subjects, and their families. Their contributions and the trust that was required for these youth to share some of the most intimate details of their young lives are invaluable. It is hoped that their participation will not have been in vain, and that this program will have planted seeds of opportunity that will benefit them in the years to come.

I. Background

California government initiatives to prevent adolescent pregnancies have expanded in the last few years. The impetus for these expansions is a substantial body of research that shows pregnancy and subsequent childbearing for teenagers is associated with many negative educational, economic, health, and social outcomes for the young mother and her children. In the 1996-97 budget, several new prevention programs were initiated and several existing prevention programs were expanded. One of these expansion initiatives involved awarding $3 million to the Adolescent Family Life Program (AFLP) to expand services to the siblings of pregnant and parenting teens.

From the inception of the Adolescent Sibling Pregnancy Prevention Program (ASPPP) to May 2000, approximately 3400 siblings of pregnant and/or parenting teens have been served for the purpose of primary teenage pregnancy prevention. Clients – none of whom have had a pregnancy at intake into the program – are from all racial/ethnic backgrounds and between the ages of 11 and 17 years of age. Other goals of ASPPP include: improving self-esteem, encouraging the siblings to stay in or return to school, providing access to needed health and reproductive services, and aiding in the development of skills and behaviors required to make healthy life style choices. All services are delivered with the intent to prevent an adolescent pregnancy, including delaying the initiation of sexual relations, increasing the consistent use of effective contraception, and deterring engagement in risk behaviors associated with teen pregnancy and sexual behavior, such as drinking alcohol and using drugs.

The Adolescent Sibling Pregnancy Prevention Program utilizes a variety of approaches to prevent pregnancy and risk behaviors among its participants. Services include: enhancing communication and positive relations between parents and their adolescent children; promoting abstinence; providing family planning information and services (providing access to contraception and reproductive health services); providing teens with the skills needed for the consistent and effective use of contraception; mentoring and role-modeling to positively influence youth's life goals and future expectations; promoting self-esteem; and encouraging positive attitudes toward school and job opportunities.

Services are carried out largely in the form of case management and group services. Case management functions primarily as a means of assessment, goal-setting, intervention planning, resource identification, monitoring, and advocacy on an individualized basis. Group services are implemented with the intent of fostering a variety of favorable outcomes, including social support, social skills, and self-esteem. Group-related activities are also a means to carry out individualized case management. As a whole, many approaches are implemented to prevent pregnancy among program clients; no one single approach dominates.

The siblings of pregnant and parenting teens were targeted for services because they are known to be at very high risk of adolescent pregnancy and childbearing. Several studies have shown that the sisters of teenage mothers have two- to six-times higher teenage birth rates than women in the general population (Cox, Emans, & Bithoney, 1993; Friede et al., 1986; Goldfarb et al., 1977; Hogan & Kitagawa, 1985). This has been shown using large samples (and, in two cases, statewide samples) of Black and non-Black adolescents in both urban and rural settings, so that these findings are likely to be robust (East & Felice, 1992). Compared to girls of the same race and economic status, the sisters of teenage mothers have also been found to be younger at first pregnancy (Cox et al. 1993), younger at sexual onset (Hogan & Kitagawa, 1985), and four times more likly to be sexually active during early adolescence (East, 1996a, 1996b; East, Felice, & Morgan, 1993).

The early adolescent younger brothers of parenting teens, although not displaying higher teenage impregnation rates, have been found to engage in higher levels of problematic behaviors (such as drug and alcohol use, school truancy, and school suspension) than boys of comparable age and race (East, 1996a). These risk behaviors are evident for both the younger brothers and younger sisters of pregnant and parenting teens at age 13 and worsen significantly for younger sisters by age 15 (East & Jacobson, 2000b). For example, relative to other girls, the younger sisters of parenting teens exhibited dramatic increases in drug and alcohol use, nonvirgin rates, frequency of intercourse, and number of sexual partners from age 13 to 15. These younger sisters also had the highest pregnancy rate at age 15 (10%) than when compared to other groups matched for age, race, and economic status (East & Jacobson, 2000b).

Research findings suggest that the siblings of pregnant and parenting teens are at such high risk of an early pregnancy both because they share the same societal, neighborhood, and within-family risk factors as the older sister, and because the sister's pregnancy and childbearing affect them in ways so as to increase their risk for early parenting. Such effects that *result from* a sister's pregnancy and parenting include parents' reduced ability to monitor their children, siblings' acting-out behavior in response to the older sister's parenting, and general socialization toward early parenting garnered largely through social modeling of the older sister and the family's increased acceptance of teenage and nonmarital parenting (East, 1998a, 1998b, 1999, in press; East & Jacobson, 2000a; East & Shi, 1997).

II. The Evaluation Study

A. Selection of Evaluation Sites

Sixteen program sites were selected to participate in the program evaluation. (The county and type of agency of the 16 evaluation sites is shown in Appendix Table A.1. The number of program clients and comparison group subjects recruited from each evaluation site is shown in Appendix Table A.2).

The selection of sites to participate in the evaluation was based on the following factors:

- number of sibling clients served at site
- representativeness of client racial/ethnic background
- representativeness of urban versus rural locales
- representativeness of site patronage (or agency type, including at least one site housed within a school district, a health department, a social service agency, and a hospital-based organization), and
- representativeness of geographic region (or area of state)

One important factor in evaluating the ASPPP is to understand how representative the evaluation sample is of all program clients served statewide. (The evaluation sample of program clients represented approximately 30% of all program clients served statewide.) In using the above criteria, we tried to select those program sites that would yield a sample of program clients most representative of all ASPPP program clients served statewide, in terms of client age, gender composition, and racial/ethnic breakdown, as well as in terms of site characteristics, such as site region, locale, and patronage.

This effort was partially successful. The gender composition of the evaluation sample was very comparable to that of clients served statewide, with both groups approximately 60% female and 40% male. There was a slight age difference between evaluation program clients (13.6 years) and all program clients (13.7 years), but this may not be clinically meaningful.[1]

With regard to youth's racial/ethnic background, clients participating in the evaluation were more likely to be Hispanic/Latino (74%) and less likely to be Non-Hispanic White (9%) than program clients served statewide (which was 69% Hispanic/Latino and 12% Non-Hispanic White). Although statistically different, these differences in racial/ethnic composition are less than five percentage points and may not be pragmatically meaningful. The percentages of African Americans and youth of other racial/ethnic backgrounds were comparable for all clients and for those clients participating in the evaluation.

Regarding site characteristics, significantly more program clients were served via county health departments (42%) than clients represented in the evaluation (34%). Moreover, more evaluation clients were served via social service agencies (47%) than those clients served statewide (32%). The percent of clients served via a community-based organization (CBO), a hospital setting, or a school setting was, however, comparable between all program clients and those included in the evaluation.

With regard to locale, a greater proportion of program clients resided in rural areas (23%) than those represented in the evaluation (15%). In addition, program clients served statewide were less likely to live in an urban area (69%) than clients who participated in the evaluation (of whom 75% lived in an urban area).

When analyzing the region of the state, a larger percentage of evaluation clients were from the Central Valley region (35%) than those in the program at large (24%). In addition, a smaller percentage of evaluation clients were from the northern region of California (6%) than all program clients served statewide (13%).

Thus, as a whole, with regard to youth characteristics, the program clients selected to participate in the evaluation were quite similar in age and gender composition as all program clients, but the two groups differed slightly in racial/ethnic composition. With regard to site characteristics, the clients selected to participate in the evaluation did not accurately reflect the clients served in the program at large in terms of the type of agency delivering the service, the locale (urban versus rural area), or the region of the state. This may have ramifications for the program evaluation and may need to be considered further.

[1]It should be noted that that the information used to describe clients served statewide was provided by David Reynen, M.P.H., MCH Branch, in August 1999. The sample was based on 3315 ASPPP clients who were active in the program at that time. Key sample characteristics may have changed after this date as more clients entered the program.

B. The Program and Comparison Groups

Inclusion criteria for participation in the evaluation as a program client included the following:

1. is at least 11 years of age and younger than 17 years and 3 months;
   has a (biological or half-) sibling who is a pregnant or parenting teen who is currently enrolled in the AFLP or the Cal-Learn Program;
2. has never been pregnant or gotten someone pregnant;
3. is currently enrolled in ASPPP.

The evaluation sites were asked to recruit an equal number of comparison group subjects as clients enrolled in the program. (Comparison group subjects were the siblings of pregnant and parenting teens but, unlike program clients, did not participate in the ASPPP.) Inclusion criteria for subjects participating in the evaluation as a comparison group subject were:

1. is at least 11 years of age and younger than 17 years and 3 months;
2. has a (biological or half-) sibling who is a pregnant or parenting teen who is currently enrolled in the AFLP or the Cal-Learn Program;
3. has never been pregnant or gotten someone pregnant;
4. is not currently and has never been enrolled in ASPPP; and
   has no siblings who are or have ever been enrolled in ASPPP (even if that sibling lives in another household).

Recruitment Procedures

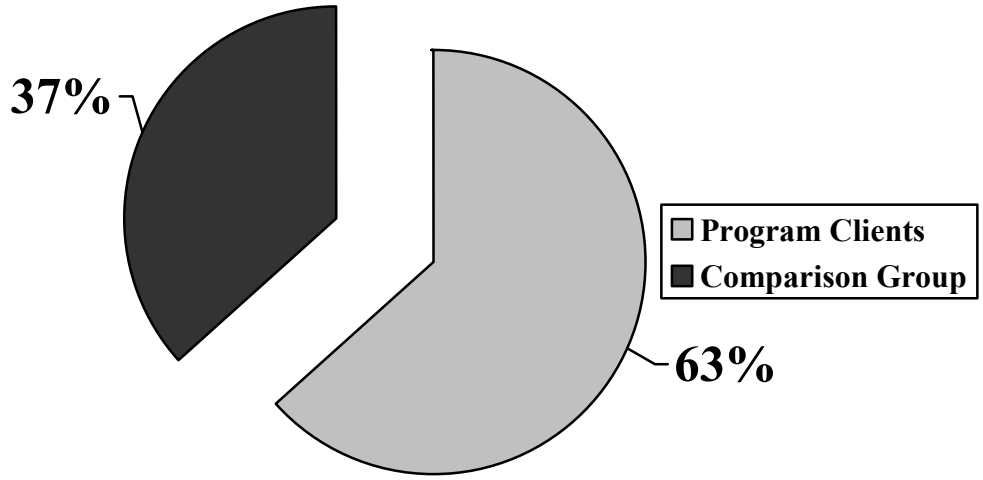
Both program clients and comparison group subjects were recruited through existing California AFLP programs and Cal-Learn programs. The methods used to recruit sibling program clients varied by program site. Most program sites, though, reported using some sort of risk assessment to enroll eligible clients, with those youth deemed most at risk for an early pregnancy given priority for enrollment. Comparison group subjects were most often recruited through two methods: waiting lists established for those who could not enter the program immediately due to full caseloads, and; by outreach, oftentimes in a satellite agency of the main program office.

The Evaluation Sample at Pre-test

The evaluation sample at pre-test included **1011** program clients (63% of total sample) and **583** comparison group subjects (37% of total sample), to form a total evaluation sample of **1594** subjects.[2] A complete description of the total evaluation sample at pre-test is provided in the Appendix. Generally, the evaluation sample was 60% female (n=965), 40% male (n=629), 70% Hispanic/Latino, 11% African American, 10% Non-Hispanic White, and 9% of another racial/ethnic background. Subjects were an average age of 13.7 years, in the 8th grade, and 97% of all subjects were currently in school at pre-test (i.e., not dropped out).

[2] An additional 29 individuals were omitted from the evaluation because it was determined at pre-test that they were currently pregnant, had been pregnant, or had gotten someone pregnant some time previously.

Figure 2.1 Composition of Evaluation Sample



Critical to the evaluation of the ASPP Program is the comparability of program and comparison subjects at pre-test. This pertains to both youth's background characteristics as well as their substantive-behavioral attributes.

Regarding youth background characteristics, the program and comparison group subjects were similar (not statistically different) along the following characteristics (see Table 2.1 below):

- gender composition
- mothers' educational level
- mothers' age at first childbearing
- mothers' current marital status (married versus not married)
- whether subject lives in a 2-parent versus 1-parent home
- number of sisters
- number of pregnant teen sisters
- number of parenting teen sisters
- sisters' age at pregnancy
- number of brothers
- number of teenage impregnating brothers

Table 2.1 Similarities Between Program and Comparison Group Subjects in Background Characteristics at Pre-test		
	Program Clients	**Comparison Group Subjects**
Percent female	60% (611)	61% (354)
Percent male	40% (400)	39% (229)
Subjects' mothers' educational level	9.3	9.6
Subjects' mothers' age at first birth	19.1	19.0
Subjects' mothers' marital status		
Married	53%	49%
Unmarried	47%	51%
Subject lives in[1]:		
1-parent household	54%	54%
2-parent household	46%	46%

[1]For this contrast, non-parent households were omitted from analyses due to their infrequent occurrence.

Program clients and comparison group subjects differed, however, on several background characteristics at pre-test. These are shown in Table 2.2.

Specifically, in contrast to comparison group subjects, program clients were younger, in lower grades, more likely to be Hispanic and less likely to be Non-Hispanic White and Southeast Asian, and more likely to speak Spanish at home. More program clients than comparison group subjects had a pregnant or parenting sibling enrolled in AFLP, whereas more comparison group subjects had a pregnant or parenting sibling enrolled in Cal-Learn. In addition, the families of program clients were significantly less likely to have ever received governmental aid and marginally less likely to be currently receiving governmental aid at pre-test than the families of comparison group subjects.

Table 2.2 Differences Between Program and Comparison Group Subjects in Background Characteristics at Pre-test		
	Program Clients	**Comparison Group Subjects**
Age	13.6	13.8
Grade	8.1	8.4
Race/Ethnicity[a]		
Hispanic	74%	64%
Black	11%	11%
White-Non Hispanic	9%	12%
Southeast Asian	2%	8%
Other	4%	5%
Speak Spanish at home	30%	19%
Sibling Enrolled in AFLP	52%	39%
Sibling Enrolled in Cal-Learn	47%	61%
Family Ever Received Gov. Aid	78%	85%
Family Currently Receiving Government Aid	64%	71%

[a]The two groups were also found to be different when using only the four groups of Hispanic, Black, White and Other.

Regarding substantive (attitudinal or behavioral) characteristics, the program and comparison group subjects were similar (not meaningfully different) along a number of domains. (The items used to make up these scales are described further below.) The areas in which comparison group subjects and program clients were similar were the following:

- school attitudes and expectations (e.g., how likely is it you will graduate from high school)
- acceptance of teenage sex and teenage parenting
- self-esteem
- parent-teen communication (e.g., how much teen talks with parent/adult relative)
- likelihood do drugs
- likelihood have a baby while still a teen
- school problems (e.g., how many times truant, suspended, etc.)
- drug and alcohol use
- delinquent behaviors (e.g., how many times got into a physical fight, involved in a gang activity)
- number of times had sexual intercourse within last three months
- number of times had intercourse within lifetime
- number of sex partners
- consistency of contraceptive use
- use of contraception at last intercourse
- ever had an STD

The program and comparison groups differed, however, with regard to a number of substantive indices at pre-test. These areas are shown below.

Table 2.3 Differences Between Program and Comparison Group Subjects in Substantive Characteristics at Pre-test

	Program Clients	Comparison Group Subjects
GPA[a]	2.3	2.5
Intentions to use a condom if have sex[b]	4.6	4.7
Intentions to have sex:[c]		
Within next year	2.4	2.5
While still a teen	2.2	2.4
Before get married	2.5	2.7
Have had voluntary sexual intercourse	15.7%	20.4%
Age at first sex	13.5	13.9
Used contraception at first sex (among nonvirgins only)	74.6%	84.9%

[a] Where 4 = mostly As; 3 = mostly Bs; 2 = mostly Cs; 1 = mostly Ds or Fs.
[b] Where 5 = definitely would use one and 1 = definitely would not use one.
[c] Where 5 = sure it will happen and 1 = sure it won't happen.
[d] Those who did not respond (n = 36, 2.3%) were omitted from the chi-square.

Specifically, when compared to comparison group subjects, program clients had lower grade-point-averages, were less intent on using a condom, and were less intent on having sex within the near future, while still a teen, and before marriage. In addition, significantly fewer program clients reported having had sexual intercourse than comparison group clients. The two groups were marginally different with regard to age at first intercourse and whether contraception was used at first intercourse.

Accounting for differences in the two groups' background characteristics (e.g., differences in age, grade, etc.) reduced all but one of the differences in the groups' attitudes and behaviors found at pre-test. (shown in Table 2.3) Program clients continued to have slightly, though statistically significantly, lower GPAs at pre-test than comparison group subjects even when controlling for subject background characteristics. **Overall, though, the program and comparison groups were quite comparable in their attitudes and behaviors at pre-test.**

C. Subject Follow-Up

Post-testing was conducted nine months after the pre-testing. Post-test questionnaires were received from 1270 subjects, or 80% of those pre-tested (1270 ÷1594 = 79.7%). Thus, attrition was 20% from pre-test to post-test.

Follow-up was slightly higher for program clients than for comparison group subjects. As shown below, 81.2% of program clients completed post-test surveys, whereas 77% of comparison group subjects completed post-test surveys.

Table 2.4 Follow-Up By Program Versus Comparison Group

	Pre-Tested	Post-Tested	Not Post-Tested
Total Sample	1594	1270 (80%)	324 (20%)
Program Group	1011	821 (81.2%)	190 (18.8%)
Comparison Group	583	450 (77%)	135 (23%)

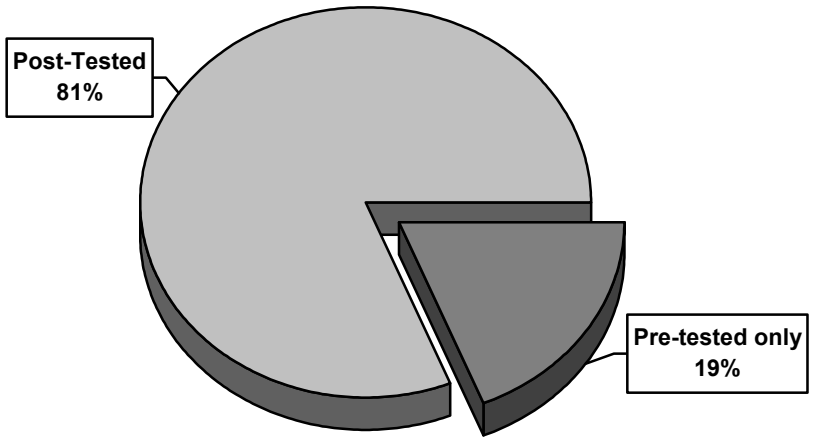


Figure 2.2 Follow-Up of Program Clients

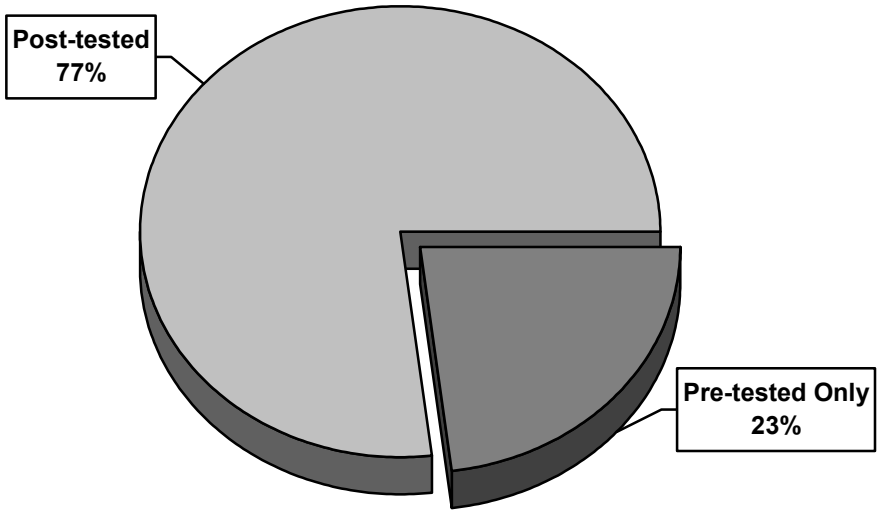


Figure 2.3 Follow-Up of Comparison Group Subjects

Follow-up rates were comparable for females (81%) and males (77.4%), and for youth of different racial/ethnic backgrounds. However, follow-up rates differed significantly for females and males within the program versus the comparison group, with males in the comparison group having the lowest follow-up.

Table 2.5 Follow-Up of Total Sample By Gender and By Group

	Pre-Tested	Post-Tested	Post-Tested by Group
Female	961	780 (81%)	81% Program 79% Comparison
Male	633	490 (77.4%)	80.5% Program 73.4% Comparison

Status of Program Clients at Post-test. At post-test, 84% of clients were still enrolled in ASPPP, 10% had exited, and 6% had dropped voluntarily. When considering all program clients, 5% exited because they could not be located, 1.6% had exited due to pregnancy, less than 1% had aged out, and less than 1% had met program goals.

Table 2.6 Status of Program Clients at Post-test (903 Clients)	
Currently enrolled	84% (754)
Exited	10% (95)
Dropped voluntarily	6% (54)
Why Exit (93 clients)	**Of All Program Clients (N=1011)**
Could not locate (52)	5.1%
Aged out (7)	0.7%
Became pregnant/got someone pregnant (16)	1.6%
Met program goals (4)	0.4%
Other (14)	1.4%
Why Drop (53 Clients)	**Of All Program Clients**
Client no longer wanted to participate (31)	3.1%
Moved from area (15)	1.5%
Parent no longer wanted to participate (5)	0.5%
Other reason (2)	0.2%

Of those clients who were dropped from the program, the primary reason was that the client no longer wanted to participate (cited by 3% of all program clients), followed by "moved from the area" (< 2%), and "parent no longer wanted client to participate" (<1%).

D. Evaluation Measures

All evaluation subjects (both program clients and comparison group subjects) completed an evaluation interview and questionnaire at pre-test. Comparison group subjects completed identical interviews and questionnaires as program clients. The evaluation interview included 21 questions about the subject's age, racial/ethnic heritage, and family background, and it had a 3.3-grade reading level. The evaluation questionnaire is a self-administered survey comprised of 59-items asking about the youth's attitudes, expectations, and behaviors. The questionnaire had a 2.5-grade reading level. A Spanish version of both the questionnaire and interview were available for all subjects. Comparable percentages of program clients (5.3%) and comparison group subjects (3.6%) completed the surveys in Spanish.[3]

Scale Scores. The items on the questionnaire were written with the intent that some items would cluster to form conceptually meaningful scales. (The individual items that comprise the various scales are shown in the Appendix.) The survey used in this evaluation yielded the following 15 scales (shown below in Table 2.7 with the score range and the interpretation of the score range):

[3]Confidentiality and Informed Consent. All subjects were assured of the confidentiality of their responses and all questionnaires were coded using only an identification number. Prior to the start of this project, this evaluation study was approved for human subject participation by the University of California, San Diego's Human Subject Research Office. All program clients and comparison group subjects read and signed a human subjects consent form prior to participating in the evaluation. Because all subjects were younger than 18 years of age at pre-test, parental or guardian consent was also obtained in all cases. A Spanish and English version of both the parental and subject consent was provided.

Assessment of Sexual and Fertility-Related Behaviors. The evaluation survey also asked about subjects' sexual and fertility-related behaviors. For example, the questionnaire included questions about whether the subject had ever had voluntary sexual intercourse and, if yes, the age at first intercourse, frequency of intercourse within the last three months and over one's lifetime, number of sexual partners, contraceptive behaviors (how regularly and which type used most often), and whether any form of birth control was used at first and most recent intercourse were
also asked. Whether the subject had experienced any sexually transmitted diseases, a pregnancy or caused a pregnancy, and the pregnancy resolution was also asked at both pre-test and post-test. For the question of whether the subject had ever been pregnant or gotten anyone pregnant, response options of "I might be pregnant now" and "I'm not sure, I could have gotten someone pregnant" were included to gauge teens who were unsure of their pregnancy status when completing the survey.

Table 2.7 Interpretation of Scale Scores

Scale (score range):	**High Scores Indicate**:
1. School attitudes (1-5)	High likelihood and value placed on school and job pursuits
2. Self-esteem (1-5)	Positive self-esteem
3. Sexual and childbearing attitudes (1-5)	Acceptance of teenage and nonmarital sex and parenting
4. Perceived costs of early childbearing (1-5)	High perceived difficulty/costs associated with early parenting
5. Parent-teen communication (1-4)	Frequent parent-teen communication about sex and contraception
6. Sexual refusal efficacy (1-5)	High perceived self-efficacy at refusing to have sex
7. Drug refusal efficacy (1-5)	High perceived self-efficacy at refusing to do drugs
8. Sexual intentions (1-5)	Positive intentions to have sex in the near future
9. Childbearing intentions (1-5)	Positive intentions to have a baby in the near future
10. Contraceptive intentions (1-5)	High perceived likelihood of using contraception if/when sexually active
11. Abstinent intentions (1-5)	Positive intentions to remain abstinent in future
12. School problems (0-4)	High frequency of school problems (i.e. truancy)
13. Drug and alcohol use (0-4)	Frequent use of drugs and/or alcohol
14. Delinquent activities (0-4)	Frequent engagement in delinquent-like acts
15. Total problem behaviors (0-4)	High frequency of engaging in a variety of problematic behaviors

It should be noted that the evaluation survey assessed **voluntary sexual intercourse only**; sexual intercourse that was coerced or involuntary was not assessed. This was done because the program staff at many ASPPP sites believed that some program clients (and comparison group subjects) might have experienced sexual abuse. **Thus, program effects will need to be placed in the context of deterring wanted or voluntary sexual intercourse only.**

Program Satisfaction at Post-test. At post-test, program clients completed an anonymous six-item Program Satisfaction Form. Exemplar questions were "*How much did you like this program?,*" "*What did you think of the program overall?,*" and "*How important has this program been to you?*" Response options ranged from 1 (very much, excellent, very important) to 5 (not at all, very poor, and not at all important). These questions had a 1.1-grade reading level.

Service Tracking. The evaluation also included rigorous service monitoring, with service providers at each site completing a Service Tracking Form for all program clients. The Service Tracking Form was completed weekly by service providers for the entire 9-month evaluation period. The service provider recorded for each program client three types of information:

(a) the length of time a particular service was received (termed "dosage" and quantified as the number of minutes the client spent participating in each service);
(b) the domain of pregnancy prevention the service pertained to (*e.g.*, helping with school, contraceptive education, abstinence promotion, social skills enhancement, etc.), and;
(c) how that service was delivered, or service "mode" (*e.g.,* whether the service was delivered via case management, support group, mentoring, or counseling, etc.).

III. Description of Services

The average amount of service received by all program clients across the evaluation period was 18.4 hours, with totals for individual program clients ranging from 45 minutes to over 95 hours. Figures 3.1 and 3.2 show the average amount of time spent per service domain (i.e., what topic was addressed) and per service mode (i.e., how the service was delivered) across all program clients. Most clients received many hours of service in recreational activities, in school-related services, and on self-esteem. Most services were delivered as either case management or within a group.

The average total service hours differed significantly by gender, with females receiving more service than males (see Figure 3.3). Male and female clients also received different levels of service within particular domains (shown in Figure 3.4) and in particular modes of service delivery (shown in Figure 3.5).

As shown in Figures 3.4 and 3.5, males spent a significantly greater percentage of their time on gang-related issues and with more of their service in group activities than females. Females, on the other hand, focused significantly more of their time on abstinence issues, life skills issues, and "other" foci not specified than did males. Females also tended to spend more of their service hours in case management, counseling and mentoring —all one-on-one activities—than did males.

Total service hours did not differ by clients' age or race/ethnicity. There were however, differences in the breakdown of service by mode and domain by client age. Specifically, as the age of the client increased, clients tended to spend proportionally more of their service hours in case management and proportionally less time in group work. Older clients also tended to have a greater percentage of their service focused on jobs, STD education, contraception, and life skills. Younger clients tended to spend proportionally more time focused on recreational activities.

Differences in percent of time spent per service domain also differed by client race/ethnicity. Specifically, Hispanic/Latino clients spent more of their service time in gang-related and HIV/AIDS prevention issues, whereas White clients spent proportionately more of their time on life skill issues than the other racial/ethnic groups. African-American clients spent more time on STD issues, and clients of "other" racial backgrounds spent more time on parental relations and recreational activities than the other racial/ethnic groups.

Figure 3.1 Total Service by Domain

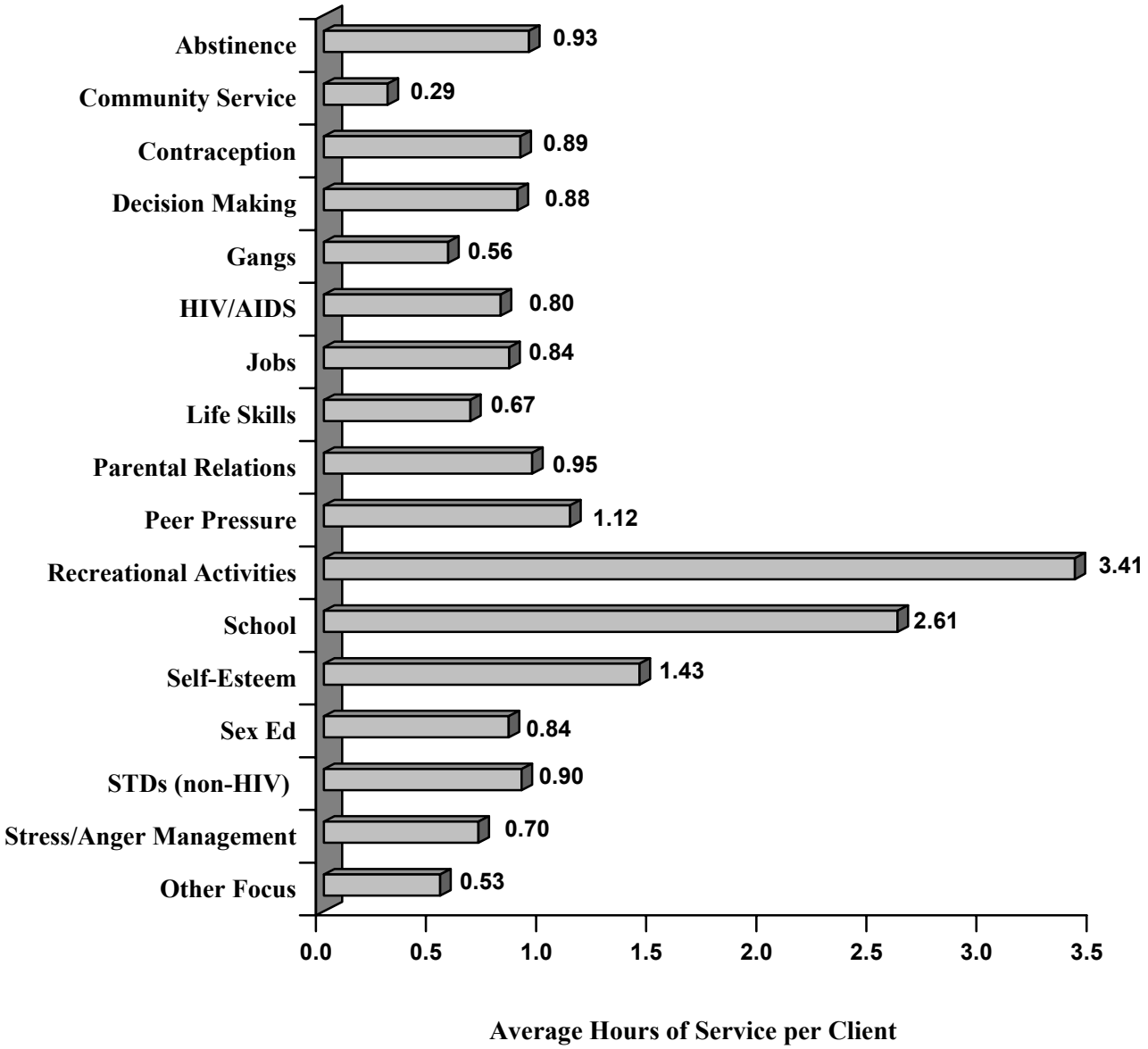


Figure 3.2 Total Service by Mode

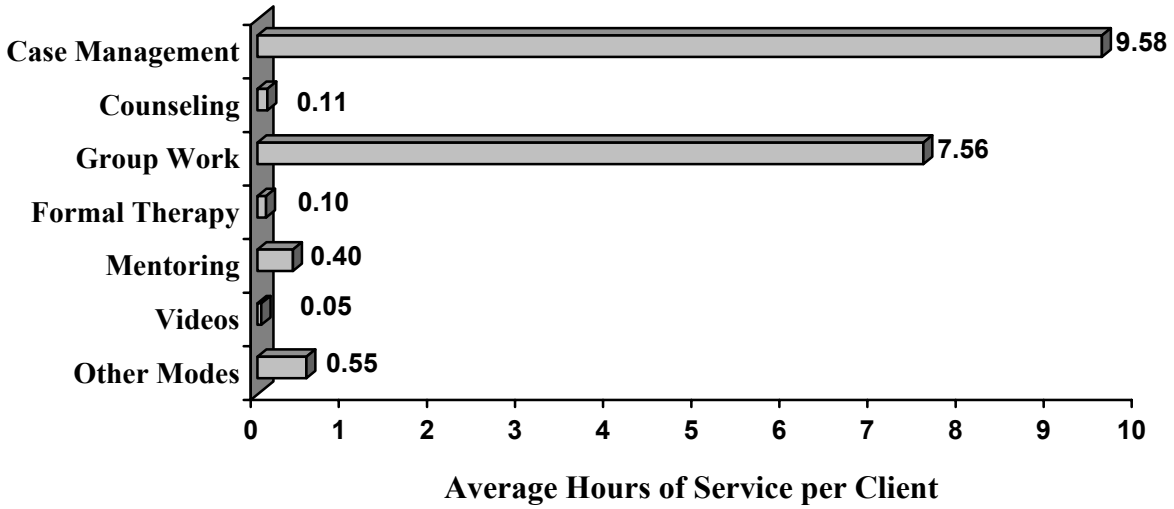


Figure 3.3 Total Service by Gender

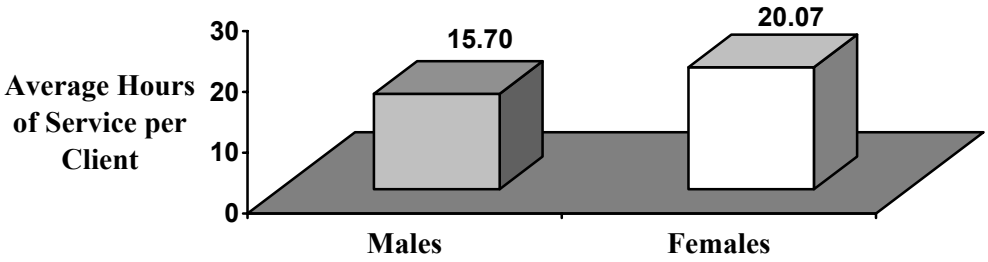


Figure 3.4 Percent of Total Service per Domain by Gender

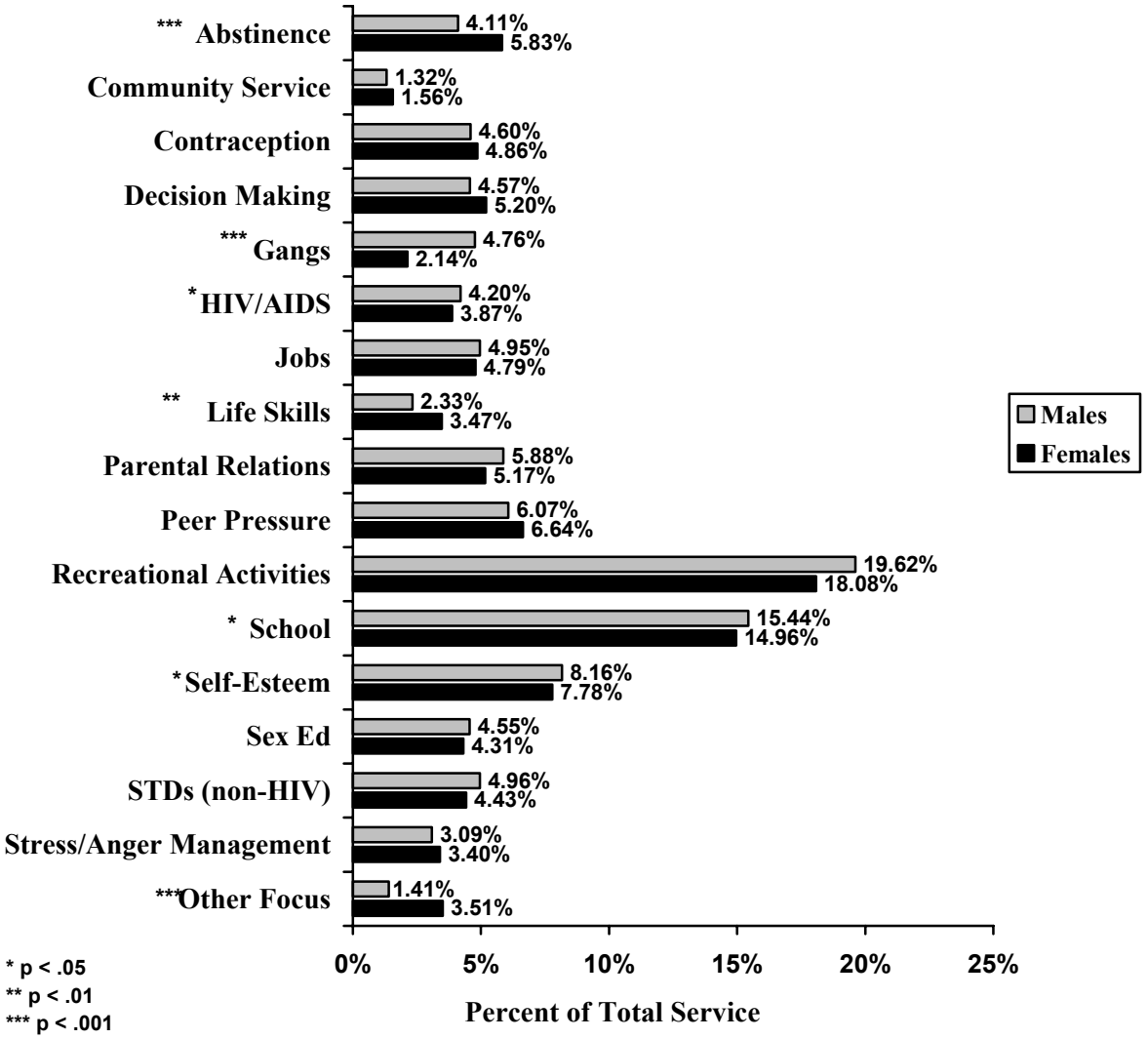
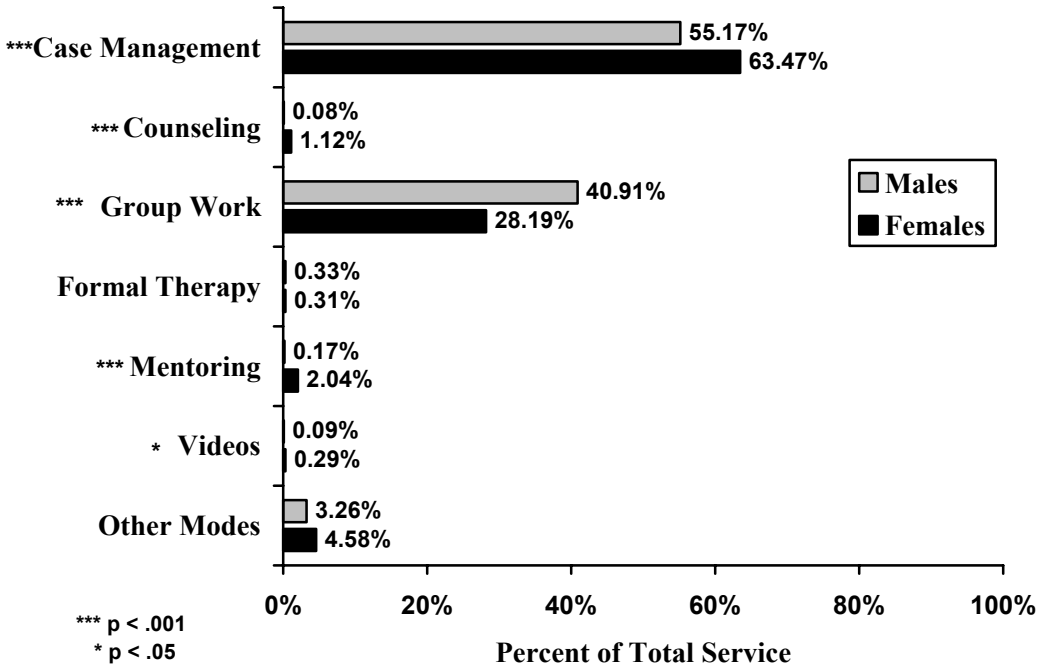


Figure 3.5 Percent of Total Service per Mode by Gender

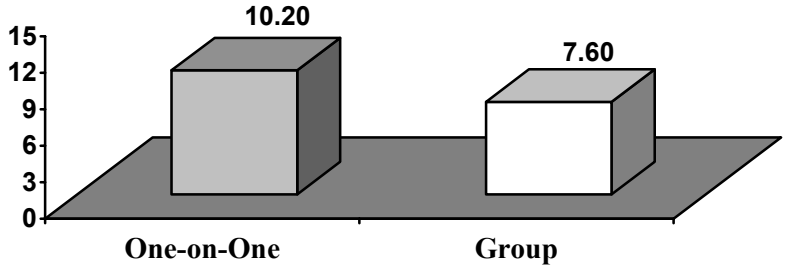


A. Two Service Modes and Four Areas of Focus

In order to simplify analyses, mode of service delivery was reduced into either one-on-one services (e.g., individualized case management) or group encounters (e.g., community service activities, recreational activities). (Videos and other, unspecified service modes were dropped from these analyses).

Overall, clients spent an average of 10.2 hours in one-on-one type services and 7.6 hours in group-type services. Older clients received more one-on-one services, and younger clients received more group services. (Figure 3.6) Female clients spent a greater percentage of their time in one-on-one services than males, and male clients spent more of their time in group services than females. There were no significant differences in service type category by clients' race/ethnicity.

Figure 3.6 Hours Spent in One-on-One Versus Group Services

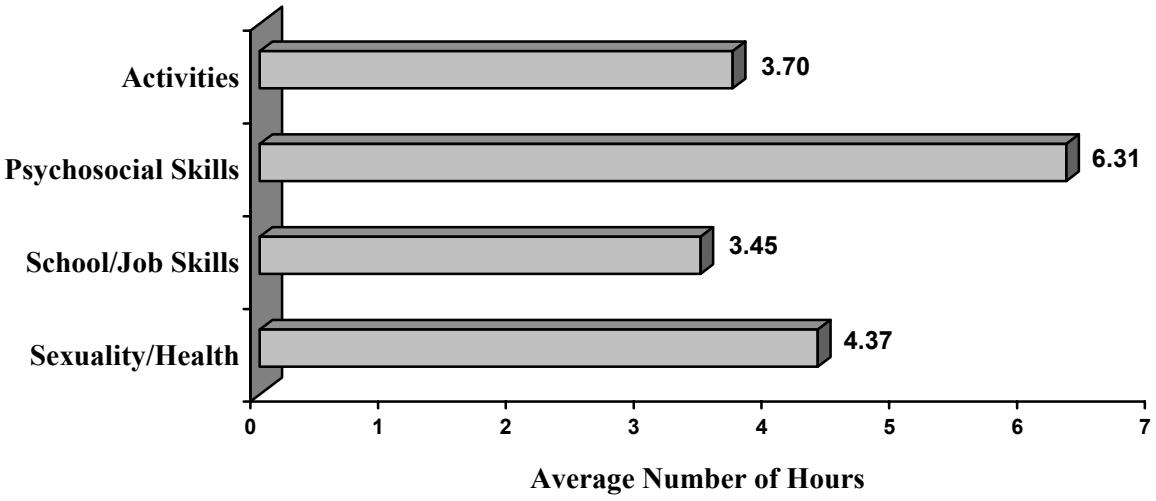


The various service domains were reduced into four broad areas of focus: Sexuality/ Health Issues (which includes service focused on sexuality education, HIV, STDs, contraception, and abstinence); School and Job Skill Issues (which includes services directed toward school options, job options, and job skills); Psychosocial Skill Issues (which includes services working on peer pressure, decision making, life skills, conflict resolution and anger management, gang-avoidance, self-esteem, and parental relations); and Activities (which includes community service and group activities).

Figure 3.7 shows the average time spent per client on each focus category for all clients overall. Most clients received over six hours of service on psychosocial issues, and about 4.4 hours on sexuality-health issues.

The average number of hours of service delivered as case management and group services by site is shown in Appendix Figure B.1. The average number of hours of service delivered within each focus area by site is shown in Appendix Figure B.2.

Figure 3.7. Total Service by Category of Focus



B. Participation in Other Non-ASPPP Services

Significantly more comparison group subjects participated in outside non-ASPPP services during the 9-month evaluation period than did program clients. (Services offered in schools, churches, Boy Scouts or Girl Scouts, and in other community agencies such as the YMCA and Boys and Girls Clubs.) These outside services often addressed key pregnancy prevention issues, such as sex education, contraceptive education, peer pressure, communication with parents, STDs, HIV/AIDS, and avoiding drugs, alcohol and gangs (see Figure 3.9). Thus, receipt of these outside services was statistically controlled in all analyses.

Figure 3.8 Percent of Subjects Who Received Non-ASPPP Services

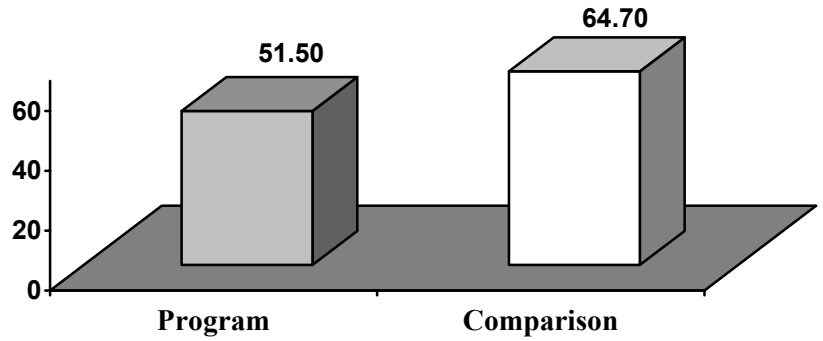
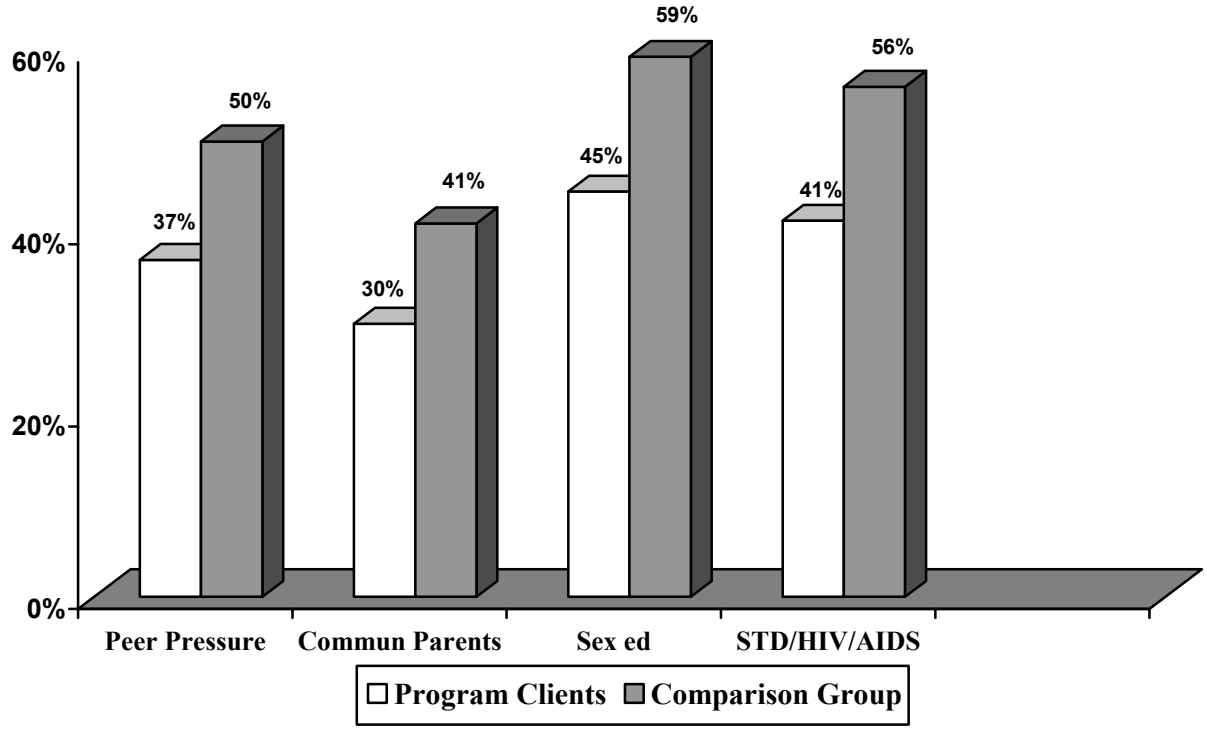


Figure 3.9 Percent of Subjects Who Received Outside Services By Type



IV. Program Outcomes

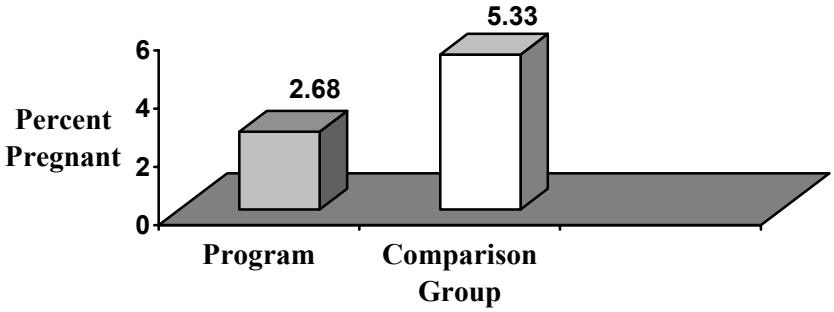
The goals of the ASPPP were to reduce teenage pregnancies, delay the initiation of first intercourse, and reduce a number of risk behaviors and attitudes associated with early sexual behavior and early pregnancy. Each of these outcomes is evaluated below.

- **Pregnancy Rates**

The post-test outcomes of pregnancy were analyzed by group. There were 46 pregnancies reported by all evaluation subjects at post-test, or **3.6%** of all subjects post-tested. This is a reasonable figure, and in line with the national pregnancy rate of 4.2% for 9th-graders as reported in the Youth Risk Behavior Surveillance Survey (the lowest grade for which data are available; CDC, 1997). Recall that the average grade in school for the current sample was 8th-grade and, thus, likely yielding a lower pregnancy rate than that reported by 9th-graders in the YRBS.

When considering only those subjects who were post-tested, **22 program clients** reported a pregnancy (out of 821 who were post-tested, or **2.68%**), and **24 comparison group** subjects reported a pregnancy (out of 450 who were post-tested, or **5.33%**). These percentages were significantly different, even when controlling for differences in program clients' and comparison group subjects' background characteristics found at pre-test (e.g., differences in age, race, etc.), as well as when controlling for participation in other, non-ASPPP services received over the evaluation period (probability level < .05). **Thus, program clients had significantly fewer pregnancies over the evaluation period than did comparison group subjects**.

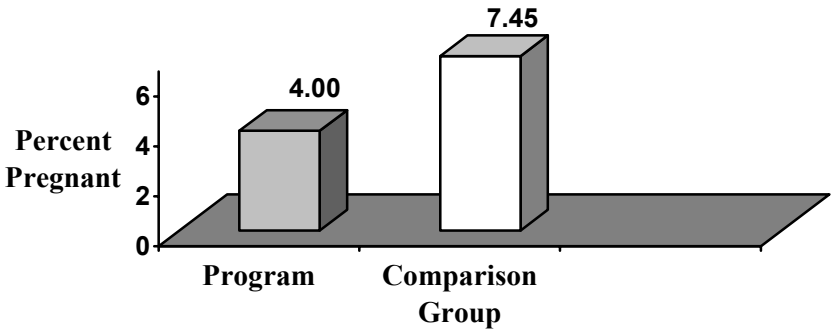
Figure 4.1 Percentage of Pregnancies By Group



Age at pregnancy was 15.7 years for program clients and 15.3 years for comparison group subjects. These ages were not significantly different.

When examined separately by gender, 20 program females reported a pregnancy (4%, or 20 ÷ 499), and 21 comparison group females reported a pregnancy (7.5%, or 21 ÷ 282). **Thus, the pregnancy rate was nearly twice as high among comparison group females than among females in the program**. This difference bordered on being statistically meaningful (probability level < .10).

Figure 4.2 Percentage of Pregnancies For Females By Group

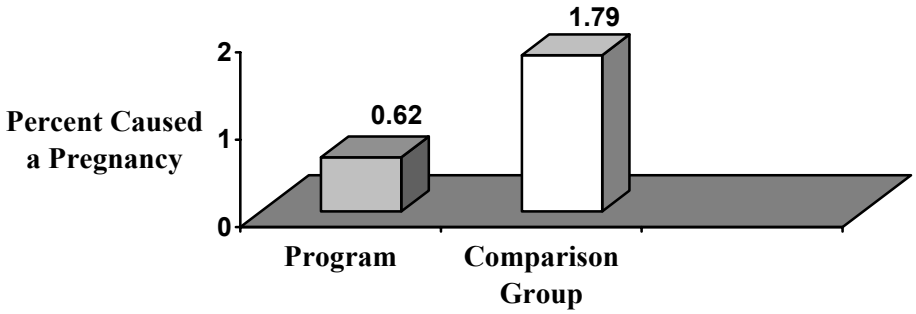


The average age at pregnancy was comparable for females in the program (15.7 years) and females in the comparison group (15.2 years).

Very few males reported causing a pregnancy. Two males in the program group and three males in the comparison group reported knowingly causing a pregnancy (shown in Figure 4.3).

These percentages were not meaningfully different. The age at pregnancy for males was also comparable between the two groups, with the males in the program group an average age of 16 years at the time of the pregnancy, and males in the comparison group an average age of 16.3 years at the time of the pregnancy.

Figure 4.3 Percentage of Pregnancies For Males By Group

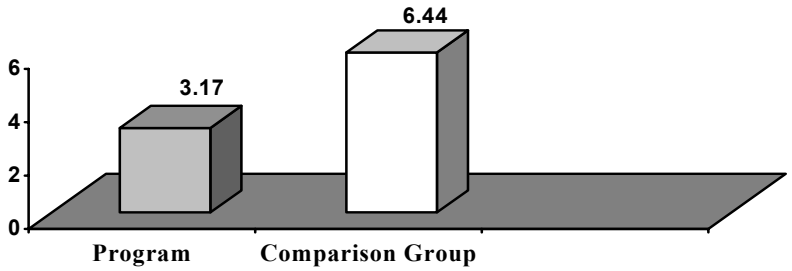


Youth who were unsure of their pregnancy status were also examined. This included females who responded yes to "I might be pregnant now," and males who responded "I'm not sure, I could have gotten someone pregnant." Young women who are at any time unsure of whether or not they are pregnant are known to be at very high risk of a (true) subsequent teen pregnancy (Zabin, Emerson, Ringers & Sedivy, 1996; Zabin, Hirsch, & Boscia, 1990). Moreover, males who are unsure of whether or not they have caused a pregnancy are also at very high risk of subsequently knowingly causing a pregnancy while still a teen (Spingarn & DuRant, 1996). Thus, this is a clinically important group.

Four program clients were unsure of their pregnancy status at the time of the post-test, and five comparison group subjects were unsure of their pregnancy status at post-test. When these individuals were combined with the youth who responded that they were pregnant or had caused a pregnancy, the percentages were as follows: 3.2% of program clients had a definite

pregnancy or a possible pregnancy (or 26 youth out of 821 post-tested), and 6.4% of comparison group subjects had a definite pregnancy or a possible pregnancy (or 29 youth out of 450 post-tested). These percentages were meaningfully different (probability level < .05), with **program clients half as likely as comparison group subjects to have a definite or a possible pregnancy during the program period.**

Figure 4.4 Percentage of Definite and Possible Pregnancies By Group



Program clients included in the above figure were an average age of 15.6 years at the time of the (definite or possible) pregnancy, whereas comparison group subjects were an average age of only 15 years old. This difference bordered on being statistically meaningful (probability level < .10, net of age differences present at either pre-test or post-test). In fact, 25% of program clients were age 14 or younger at (definite or possible) pregnancy, whereas 36% of comparison group subjects were age 14 or younger at (definite or possible) pregnancy. Thus, program services may be especially effective at preventing pregnancies among very young teens, or those age 14 or younger.

Differences Between Those Who Became Pregnant and All Other Subjects

Differences between youth who became pregnant and the total sample were computed to identify who is at risk for teen pregnancy within this sample. Those who became pregnant or caused a pregnancy were, on average, older, more likely to be female, less likely to have been a virgin at pre-test, and less likely to have been in the program (shown below). (All of these differences were statistically meaningful.) There were no differences in pregnancies with regard to subjects' race/ethnicity. **Thus, this again points to the effectiveness of the program at preventing teen pregnancies.**

Table 4.1 Differences Between Those Who Became Pregnant and the Total Sample

	Total Sample (N=1270)	Those Pregnant (N=46)		
Average age	13.63 years	15.02 years		
% Female	61.4%	89.1%		
% White	9.3%	10.9%		
% Black	10.1%	8.7%		
% Hispanic	71.9%	69.6%		
% In program (vs. Comparison)	64.6%	47.8%		
% Virgin at Pre-test	84.6%	55.6%		

- **Virgin-to-Nonvirgin Change**

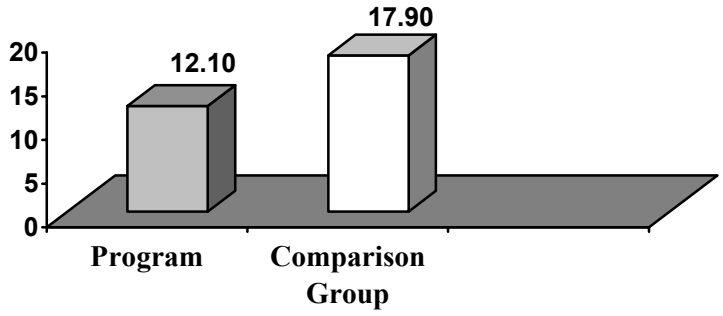
An important component of the program was to prevent (or delay) clients from initiating sexual relations. To address this, virgin-to-nonvirgin transition rates were analyzed by group. The percentages of program clients and comparison group subjects initiating sexual relations from pre-test to post-test are shown in Table 4.2 and Figure 4.5. As evident from the table, slightly more than 14% of all youth started sexual relations during the nine months of the evaluation: 12% of program clients and 18% of comparison group subjects. These virgin-to-nonvirgin transition rates were not meaningfully different once appropriate controls were implemented (e.g., group differences in age, race, etc.).

Table 4.2 Virgin-to-Nonvirgin Transition Across the Evaluation Period By Group

	Total Sample (n = 1030)	Program (n = 667)	Comparison (n = 363)
Pre-test			
Virgin	80.3%	81.1%	78.9%
Nonvirgin	17.4%	15.7%	20.4%
No response	2.3%	3.2%	0.7%
Post-test			
Virgin	72.8%	74.9%	69.0%
Nonvirgin	25.6%	23.4%	29.6%
No response	1.7%	1.7%	1.4%
Percent Changed Virgin-to-Nonvirgin	14.2% (n = 146)	12.1% (n=81)	17.9% (n=65)

Note: Virgin-to-nonvirgin change was calculated only for subjects who had sexual status data for both timepoints.

Figure 4.5 Percentage of Subjects Who Lost Virginity By Group



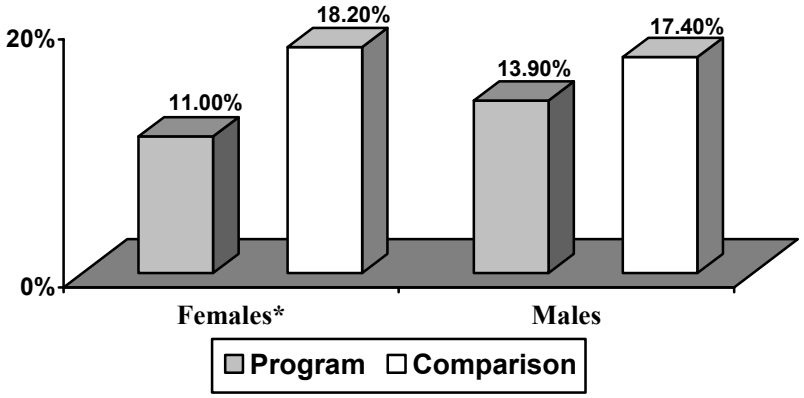
The virgin-to-nonvirgin transition rates by gender are shown in Table 4.3 and Figure 4.6. Eleven percent of females in the program lost their virginity during the program period, while more than 18% of females in the comparison group lost their virginity. These rates were marginally statistically different when the appropriate background controls were implemented (probability level < .06). The male transition rates were 14% for program males and 17% for comparison group males; these percentages were not statistically different.

Table 4.3 Change to Nonvirgin Status By Group and Gender

	FEMALES		MALES	
	Program (n = 401)	Comparison (n = 231)	Program (n = 266)	Comparison (n=132)
Pre-test				
Virgin	80.9%	80.2%	82.0%	77.3%
Nonvirgin	16.2%	19.6%	14.5%	21.4%
No response	2.9%	0.2%	3.5%	1.3%
Post-test				
Virgin	75.7%	70.0%	74.8%	67.9%
Nonvirgin	22.3%	29.2%	23.9%	30.0%
No response	2.0%	0.8%	1.3%	2.1%
Percent Changed Virgin-to-Nonvirgin	11.0% (n = 44)	18.2% (n=42)	13.9% (n=37)	17.4% (n=23)
Difference Probability Levels	< .06		not meaningfully different	

Note: Virgin-to-nonvirgin change was calculated only for subjects who had sexual status data for both time points.

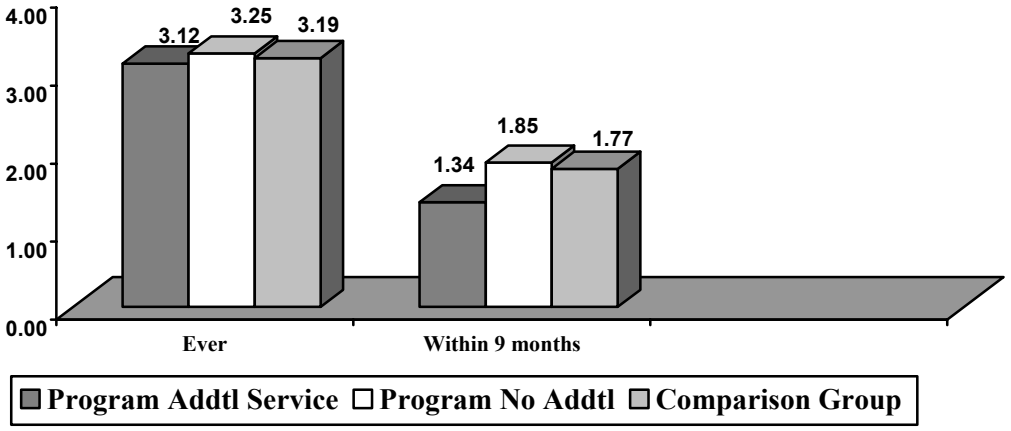
Figure 4.6 Virgin-To-Nonvirgin Transition Rates By Group and By Gender



*The difference in transition rates for females in the program (the darker bar) versus females in the comparison group(the lighter bar) was marginally statistically meaningful.

Many indices of youth's pregnancy risk behavior were examined. This pertained to nonvirgins only and included youth's age at first sex, frequency of sex, whether or not contraception is used, how consistently contraception is used, the type of method used, and number of sexual partners. No group differences were apparent in these kinds of pregnancy risk behaviors between program clients and comparison group subjects. However, there was an association between whether or not program clients received additional non-ASPPP services and outcome. Specifically, **program clients who received outside services had significantly fewer sexual partners over their lifetimes and within the last nine months than either program clients who received no additional services or comparison group subjects**. (These differences were statistically meaningful; shown in Figure 4.7)

Figure 4.7 Number of Sex Partners by Group and Receipt of Outside Services



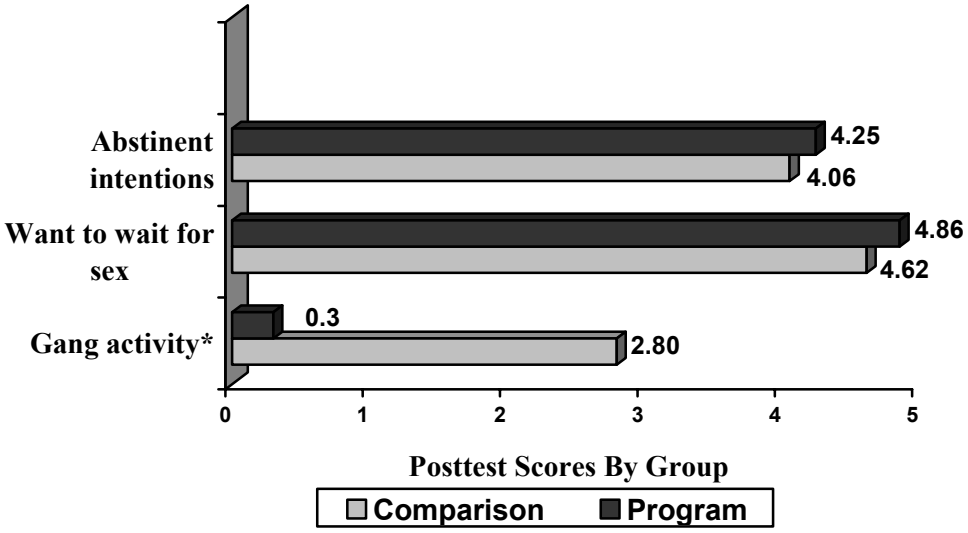
- **Reduction in Risk Behaviors and Permissive Attitudes**

One of the goals of the Adolescent Sibling Pregnancy Prevention Program is to deter youth's engagement in risk behaviors associated with teen pregnancy and sexual behavior. Several key attitudes and behaviors are known to precede teens' engagement in sexual behavior and high-pregnancy risk behaviors. These risks include permissive attitudes (i.e., acceptance of teenage sex and teenage childbearing), intentions of having sex (or of having a baby) as a teen, low self-esteem, school problems (poor school performance, school truancy, or drop out), and problem behaviors (such as drug and alcohol use, delinquent-type behaviors such as running away, aggressive behavior, involvement with the police, etc.) (reviewed in Alan Guttmacher Institute, 1994; DiClemente et al., 1996; Kirby, 1997, 2000; Miller, 1998; Moore, Sugland, Blumenthal, Glei & Snyder, 1995; Moore, Miller, Glei & Morrison, 1995; Zimmerman et al., 1993).

Comparing the behaviors and attitudes of program clients and comparison group subjects revealed two important factors to consider: youth's gender and receipt of additional, non-ASPPP services.

Regarding gender, the program appears to have been slightly more beneficial for females than males. For example, at post-test, females in the program group had significantly stronger intentions to be abstinent, were significantly more willing to wait until they are older to have sex, and engaged in significantly less gang activity than females in the comparison group (shown in Table 4.4 and Figure 4.8, with program females depicted in the top bar, comparison group females in the lower bar). In contrast, program males had significantly lower self-esteem, lower intentions to wait until they are older to have sex, and engaged in significantly more gang activity at post-test than males in the comparison group (even while controlling for pre-test levels of these behaviors, youth's background characteristics, and receipt of outside, non-ASPPP services). (Analysis of change that occurred across the 9-month evaluation period also indicated that males in the program group experienced declines in school attitudes and self-esteem, whereas males in the comparison group showed increases in these areas across time. In addition, females in the program group experienced a slight decline in their perceived importance of going to college, whereas females in the comparison group showed a slight increase in these perceptions.)

Figure 4.8 Posttest Scores By Group For Females



*For the figure only, gang activity was recoded to a 1 to 5 score range to fit the y-axis.

Table 4.4 Post-test Risk Reduction Scores by Group and Gender

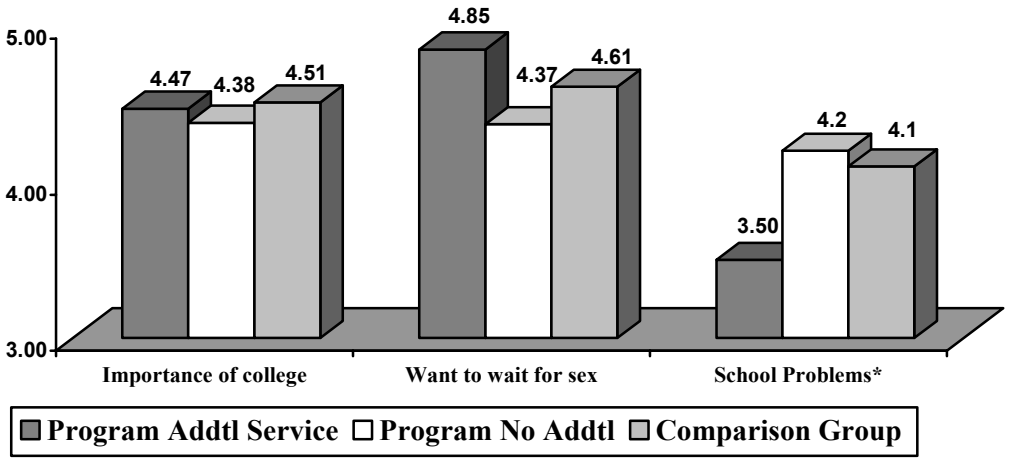
Post-test Outcome	Program	Comparison	Probability Level
Self-esteem			
Female	4.50	4.43	Nd
Male	4.52	4.69	*
Abstinent intentions			
Female	4.25	4.06	*
Male	3.82	3.83	Nd
Want to wait till older to have sex			
Female	4.86	4.62	**
Male	4.25	4.59	*
Gang activity			
Female	0.30	2.80	*
Male	1.50	0.40	*

Note. Sample sizes were as follows: 493 program females; 321 program males, 281 comparison group females; and 168 comparison group males. Subject background characteristics, outcome as assessed at pre-test, and participation in non-ASPPP-related services were statistically controlled.

***Nd* = not meaningfully different. * probability level < .05. ** probability level < .01.**

When program clients received additional services outside of ASPPP, they showed especially favorable outcomes when compared to program clients who did not receive such outside services or to comparison group subjects. For example, program clients who received additional non-ASPPP services had the strongest intention to remain abstinent during the teenage years, the least frequent school problems, and the fewest cumulative problem behaviors than any other group. In addition, program clients who received outside services, when compared to program clients who did not receive outside services, had significantly more positive school attitudes and placed more importance on going to college (see Table 4.5 and Figure 4.9).

Figure 4.9 Outcomes By Group and Receipt of Outside Services



*For the figure only, the school problems score was recoded (multiplied by 5) to fit the y-axis.

Table 4.5 Group by Other (Non-ASPPP) Services Interactions

Post-test Outcome	Program		Comparison		Probability Level
	Yes – Other (n = 419)	No – Other (n = 395)	Yes – Other (n = 288)	No – Other (n = 157)	
School orientation	3.82	3.69	3.88	3.93	**
Importance go to College	4.47	4.38	4.50	4.53	***
Want to wait to Have sex	4.85	4.37	4.63	4.60	*
School problems	0.70	0.83	0.87	0.78	+
Cumulative problem Behaviors	0.41	0.47	0.50	0.44	+

Note: All contrasts controlled for outcome as assessed at pre-test, appropriate subject background characteristics, and gender.

+ p < .06. * p < .05. ** p < .01. *** p < .001.

School dropout is a particularly significant risk factor for teen pregnancy (Moore, Miller et al., 1995). The dropout rates for program clients and comparison group subjects were as follows:

Table 4.5a School Dropout Rates By Group

	Program Clients	Comparison Subjects
Pre-test	**2.4%**	**1.4%**
Post-test	**3.3%**	**3.4%**
Percent Increase	**0.9%**	**2.0%**

As shown above, fewer individuals in the program dropped out of school during the evaluation period than comparison group subjects. However, the dropout rates were too low in the current sample to reliably compare between the program clients and comparison subjects.

Summary

Many program effects were evident in youth's pregnancy rates, loss of virginity and risk behavior. Specifically, program clients had significantly fewer pregnancies than comparison group subjects, and program clients were slightly older at pregnancy (and possible pregnancy) than comparison group subjects. A lower percentage of females in the program lost their virginity during the evaluation period than females in the comparison group. Females in the program group had significantly stronger intentions to be abstinent and engaged in significantly less gang activity than females in the comparison group.

In addition, program clients who received additional non-ASPPP services had several favorable outcomes relative to program clients who did not receive outside services or comparison group subjects. However, males in the program had significantly lower self-esteem at post-test and engaged in more gang activity at post-test than males in the comparison group (net of group differences in age, racial/ethnic background, and pre-test levels of these behaviors).

A. Linking Services to Outcomes

This section describes associations between client outcomes and total services received, while controlling for a variety of youths' background characteristics (e.g., age, gender, race/ethnicity, etc.). Total service hours were associated with some youth outcomes, but not to all. Because case management accounted for 92% of all of the one-on-one services and because relationships between service and outcomes were stronger in most cases for case management than for all one-on-one services combined, service mode was examined as case management versus group services. Focus areas included the four general domains of psychosocial issues, job and school skills, sexuality and health services, and activities (i.e., recreational and community-service activities).

Outcomes are described using change scores, or the difference between a client's response at pre-test versus at post-test. Change scores were calculated as the post-test score minus the pre-test score, such that positive change scores indicate an increase in that variable across the evaluation period, and negative change scores indicate a decrease in that variable across the evaluation period. It should be noted that change scores include only those subjects for whom data are available at both times of testing. Moreover, with regard to sexual variables, change scores do not reflect those subjects who initiated intercourse at post-test (e.g., their contraceptive behavior or their frequency of intercourse behavior, etc.). Interpretations of specific change scores will be described further below.

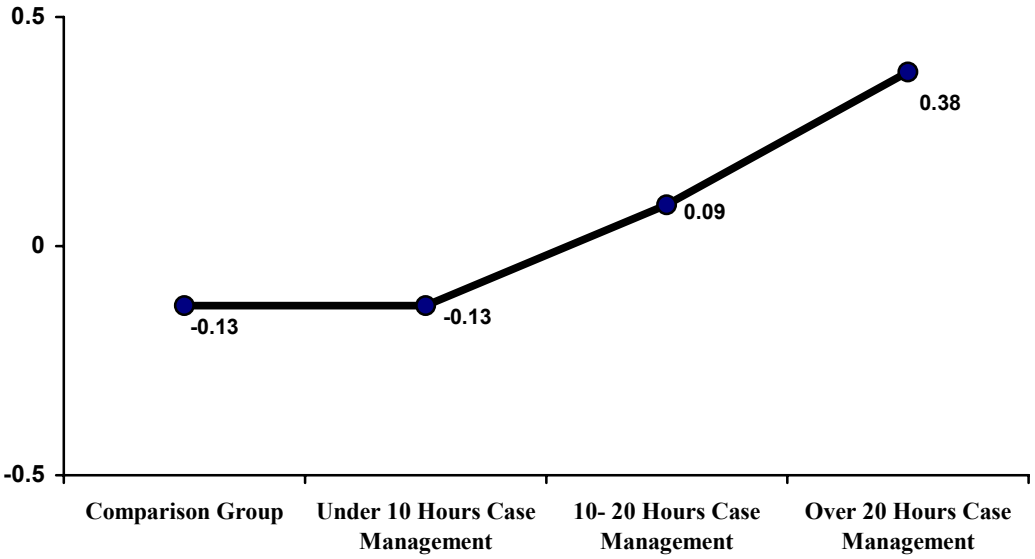
Linking Total Service Hours and Mode of Service to Outcomes

Receiving many hours of service was associated with significant increases in clients' perceived likelihood of graduating high school, decreases in intentions to have a baby in the near future, increases in intentions to use contraception if or when sexually active, and increased use of effective (versus ineffective) contraception (for those who were sexually active). Thus, many notable gains were made for those who received many hours of service.

When examining the two different modes of service, -- that is, case management and group services -- many associations were found between mode of service and client change. Specifically, many hours in case management correlated with: increases in positive school attitudes, increases in clients' perceived likelihood of graduating high school, increases in perceived ease of refusing drugs, decreases in intentions to have a baby in the near future, very strong increases in use of effective contraception (versus ineffective methods), and decreases in cumulative pregnancy risk behaviors (i.e., number of sexual partners, frequency of sex, consistent use of contraception, etc.).

To illustrate the correlation between change in use of effective birth control and number of hours received in case management, Figure 4.10 shows the relationship between case management and use of effective birth control at last sex. For clarity, program participants were divided into groups by amount of case management, and average changes in use of effective birth control were calculated at the group

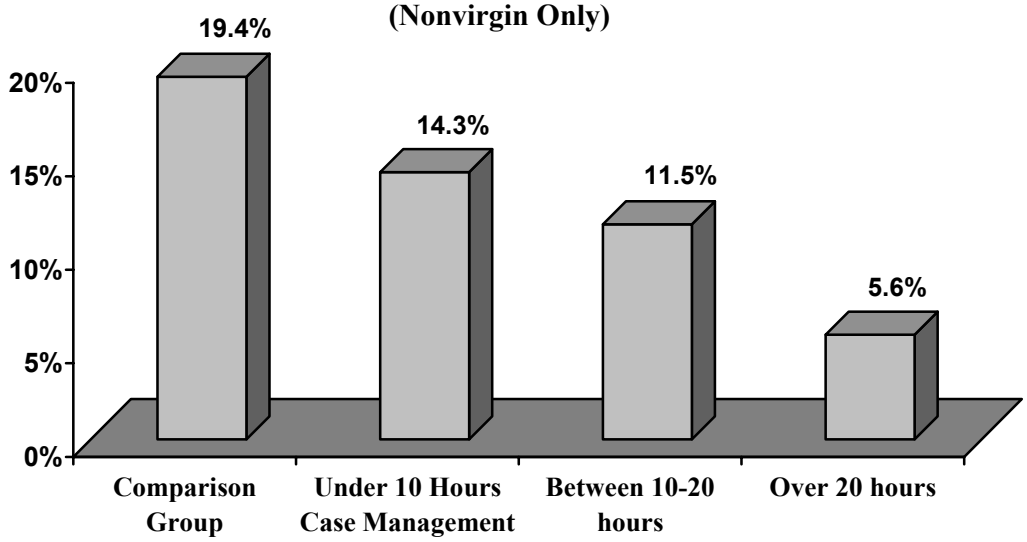
Figure 4.10 Change in Use of Effective Birth Control From Pretest to Posttest



level.

Case management services were also strongly correlated with the prevention of pregnancies for all clients. Figure 4.11, below, shows the rate of pregnancies occurring among nonvirgins only for comparison group subjects and for program participants by varying levels of case management hours. (Pregnancy "scares" [responses of "I might be [or have gotten someone] pregnant"] were not included in these analyses.) As evident in this figure**, sexually active program clients who received over 20 hours of case management were four times less likely to become pregnant or cause a pregnancy than sexually active comparison group subjects, and three times less likely to experience a pregnancy than sexually active program clients who received fewer than 10 total hours of case management over the evaluation period.**

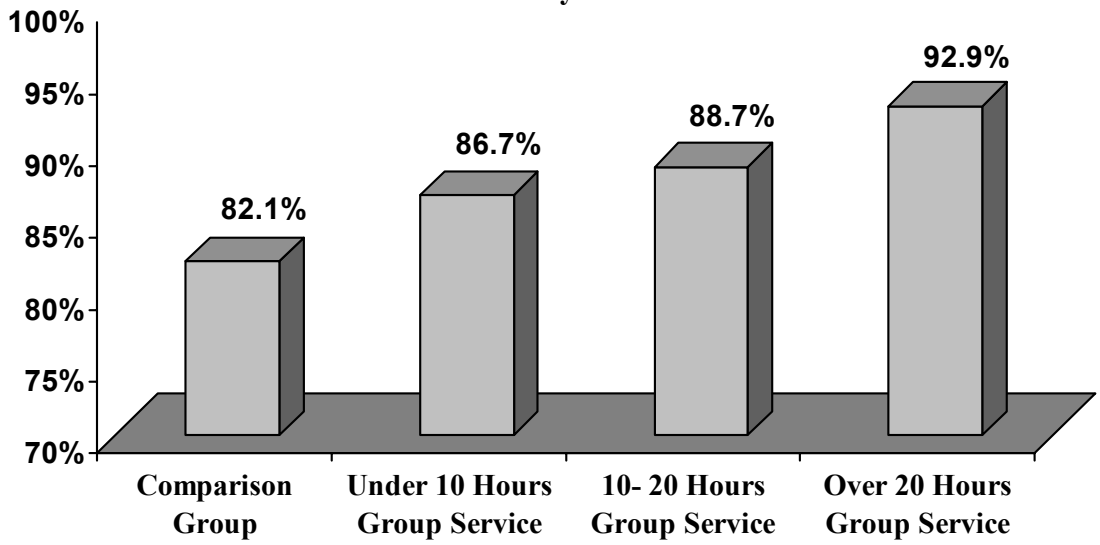
Figure 4.11 Percent of Subjects Having/Causing Pregnancies During Study (Nonvirgin Only)



Correlations between time spent in group services also correlated with many favorable client outcomes, specifically: increases in a positive school attitudes, decreases in permissive attitudes toward teenage sex and childbearing, increases in parent-teen communication, decreases in the perceived likelihood that the client would do drugs, decreases in clients' sexual intentions and childbearing intentions, increases in intentions to use contraception if or when sexually active, and reductions in the percentage of nonvirgins.

Figure 4.12 shows the relationship between subjects' loss of virginity over the evaluation period for varying group-service levels that program clients received and for comparison group subjects. As evident in this figure, spending many hours in group service was highly associated with remaining abstinent (i.e., not initiating intercourse) across the evaluation period.

Figure 4.12 Percent of Virgins at Pre-Test Remaining Virgins During Study



All of these associations are summarized in Table 4.6.

Linking Services Received Within Each Focus Area and Client Outcomes

Many associations were also found between client outcomes (i.e., change scores) and the total service hours received within the four service domains of: sexuality and health issues, school and job skills, psychosocial skills, and activities (such as recreational or community-service activities). For example, hours received in sexuality and health issues was associated with an increase in the percentage of nonvirgins at post-test and increases in use of effective (as opposed to ineffective) contraception. (The former association is most plausibly interpreted as reproductive services *given in response* to clients' initiation of sexual relations. In fact, when time spent on sexuality/health issues was statistically controlled, the expected relationship between total service hours and loss of virginity surfaced such that clients who received many total service hours were more likely *to remain virgins* across the program period. In addition, the strong and positive relation between receipt of sexuality-health-related services and use of effective contraception also suggests that sexuality-health services were given as a result of clients' initiating sexual relations, as opposed to the reverse.)

Table 4.6 Summary of Favorable Client Changes By Service Mode

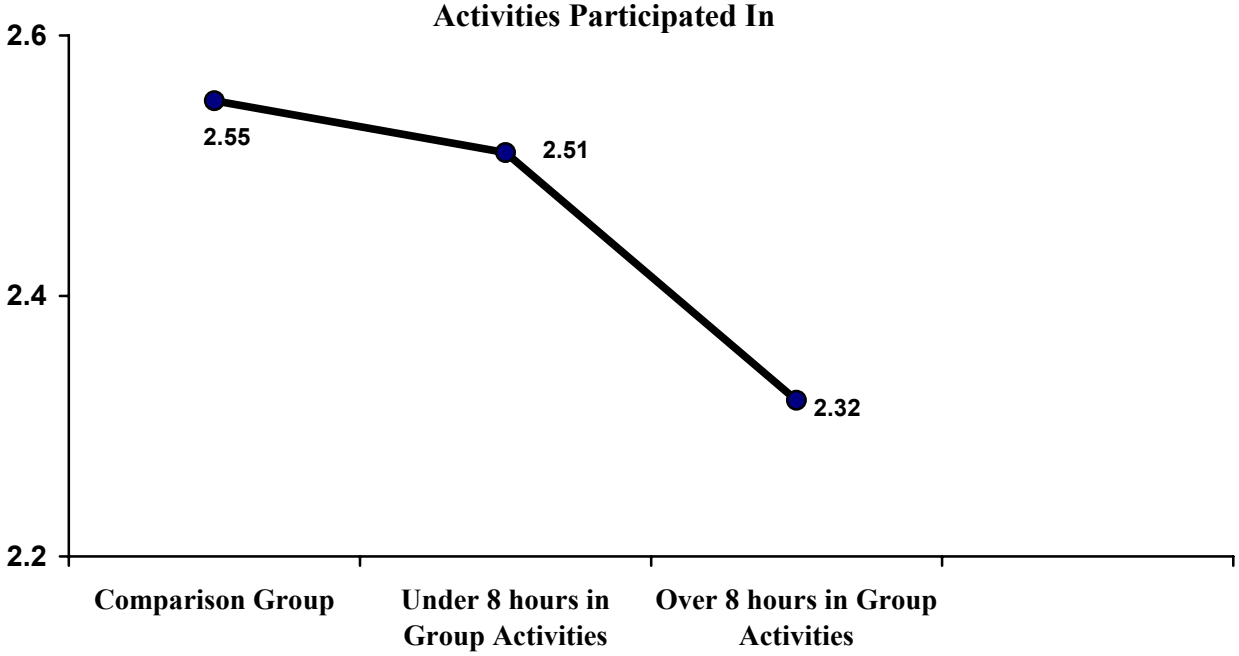
Many Hours in:	**Likely to Show**:
Case management:	Increases in school attitudes Increases in perceived likelihood will graduate high school Increases in reported ease of refusing drugs Decreases in intentions to have a baby as a teen or nonmaritally Increases in use of effective contraception Decreases in cumulative pregnancy risk behaviors Decrease in likelihood become/cause a pregnancy Increases in perceived likelihood graduate high school Decreases in permissiveness about teenage and nonmarital sex and childbearing Increases in parent-teen communication
Group activities:	Decreases in perceived likelihood do drugs Decreases in intentions to have sex in the near future Decreases in intentions to have a baby as a teen or nonmaritally Increases in intentions to use contraception Decreases in percent nonvirgins

When examining receipt of services directed toward school and job services, three favorable outcomes emerged: decreases in clients' childbearing intentions, increases in their intentions to use contraception (if or when sexually active), and significant decreases in several key pregnancy-risk behaviors (i.e., having sex less often, having fewer sexual partners, using contraception more consistently, etc.).

Receipt of services related to psychosocial issues seemed to have the largest impact on favorable client change. For example, receiving many hours of psychosocial services was related to increases in clients' perceived likelihood of graduating high school, decreased sexual intentions, decreased childbearing intentions, and increased contraception intentions. Receipt of psychosocial services also correlated with a *reduced* likelihood of the client losing their virginity across the program period, and increased use of effective contraception.

Receiving many service hours in activities (which included community service activities and group activities, e.g., support groups, sports teams, etc.), was significantly associated with: increases in clients' positive school attitudes and expectations, increases in clients' perceived likelihood that they will graduate from high school, decreases in clients' sexual and childbearing intentions, and a reduced likelihood of losing one's virginity across the program period. The association between hours spent in group activities and youth's intentions to have sex during the teenage years (as assessed at post-test) is shown in Figure 4.13.

Figure 4.13 Youths' Intentions to Have Sex as a Function of Group Activities Participated In



Summary

Many favorable changes were related to receipt of service within specific domains. These associations are summarized in Table 4.7. Favorable change was perhaps most strongly related to the receipt of psychosocial services, which included services directed toward peer pressure, decision making, life skills, conflict resolution and anger management, gang avoidance,

self-esteem enhancement and parental relations.

B. Program Outcomes By Client Characteristics

In addition to clarifying which services were associated with what kind of outcome, it is also important to uncover whom benefited most from the program and how. This section explores some of the characteristics of the program clients and how those characteristics relate to program outcomes.

Table 4.7 Summary of Favorable Client Changes By Service Domain

Many Hours in:	Likely to Show:
Sexuality-health issues	Increases in virgin-to-nonvirgin change[4] Increases in use of effective contraception
School-job skills	Decreased childbearing intentions Increased contraceptive intentions Decreased cumulative pregnancy risk
Psychosocial skills	Increased perceived likelihood will graduate High school Decreases in sexual intentions Decreases in childbearing intentions Increases in contraceptive intentions Decreased likelihood will lose virginity Increases in use of effective contraception
Group-community activities	Increases in favorable school attitudes Increases in perceived likelihood will graduate High school Decreases in sexual intentions Decreases in childbearing intentions Decreased likelihood will lose virginity

Age

Associations were evident between clients' age and the following outcomes: younger clients experienced significant increases in parent-teen communication about sex and contraception; older clients engaged in all problem behaviors less frequently; older clients showed significant reductions in gang involvement; and older clients engaged in more pregnancy risk behaviors over the course of the program (e.g., having many sexual partners, not using contraception consistently, etc.). Thus, younger clients tended to make more positive gains in communicating with parents or adults about sex and contraception, whereas older clients tended to benefit more in terms of reductions in problem behavior, and specifically gang-related behavior, as a result of participation in the program.

Gender

Gender also plays a potentially important role in program outcomes. For example, males and females might respond differently to the information they hear and the activities they engage in. Change scores for male and female clients were contrasted. Results indicated that: female clients showed a slight increase in their positive attitudes toward school and an increase in their self-esteem, whereas male clients showed decreases in these areas across the program period.

[4]Considering all associations as a whole, this correlation is most plausibly interpreted as sexuality-health services offered in response to clients' virgin-to-nonvirgin change.

Regarding sexual behaviors, both male and female clients increased their number of sexual partners, but males increased their number of sexual partners significantly more than female clients did. Male clients also increased their consistency of contraceptive use, whereas female clients reported being less consistent in their contraceptive use at post-test relative to at pre-test.

Thus, female clients tended to benefit from the program more than males in terms of their attitudes and expectations about school, their self-esteem, and their number of sexual partners. In contrast, male clients tended to show more favorable change as a result of the program with regard to using contraception more consistently than female clients.

Race/Ethnicity

Change over the program was associated with clients' race/ethnicity for only two outcomes: clients of different racial/ethnic backgrounds experienced different changes in their perceptions of the hardships associated with early parenting, and had different change levels in the frequency of hitting someone or getting into a fistfight. Specifically, Hispanic/Latino clients experienced the sharpest increase in their perceived hardships associated with early parenting, more so than any other group. African American clients showed no change in their perceptions, and White clients showed a very slight decrease in their perceptions about how difficult it is for teenage parents. Regarding hitting and fighting behavior, all groups showed a decrease in the frequency with which they engaged in hitting and fighting across the program period, but African American clients showed the largest decrease, followed by non-Hispanic Whites.

Thus, Hispanic/Latino clients tended to benefit from the program most with regard to their attitudes about the hardships involved in early parenting, and African American clients showed particularly large reductions in the incidence of hitting and fighting across the program period.

Summary

Individual differences are known to emerge in pregnancy prevention program outcomes (Moore et al., 1995; Peterson et al., 1994). For example, interventions may be more effective in specific domains for older versus younger clients, for male versus female clients, and for clients of different racial/ethnic backgrounds. Results of this evaluation uncovered more favorable change across the program period for some groups relative to others. A table summarizing the subject characteristics associated with favorable change across the program period is shown in Table 4.8.

Table 4.8 Summary of Subject Characteristics Associated With Favorable Change

Subject Characteristic	More Likely to Show
Younger clients	Increases in parent-teen communication.
Older clients	Decreases in cumulative problem behavior.
Older clients	Decreases in gang-related behavior
Female clients	Increases in school orientation.
Female clients	Increases in self-esteem.
Female clients	Acquired fewer sexual partners
Male clients	Increases in consistency of contraceptive use.
Hispanic clients	Increases in perceived costs of early parenting.
African American clients	Decreases in hitting/fighting behavior.

C. Program Outcomes By Site Characteristics

The following describes *where* and *for what sites* did favorable change occur. Four characteristics of the site were assessed in this evaluation: region (what general area in California), patronage (school, social service agency, hospital, etc.), locale (rural, suburban, and urban), and where program services took place (site office, community center, client's home, etc). This section examines whether more favorable outcomes were experienced by program clients vis-à-vis these site characteristics and, if so, for which program outcomes did more positive change occur.

Site Region

Region of the state was significantly associated with changes in clients' scores in the areas of sexual and childbearing attitudes, fighting and hitting behavior, and virgin-to-nonvirgin change. Clients in the Greater Bay Area showed the largest increase in permissiveness in their attitudes, whereas clients in the Northern and Southern regions of California decreased the permissiveness of their sexual and childbearing attitudes (i.e., they were less accepting of teenage sex and parenting from pre-test to post-test). Thus, clients in the Northern and Southern regions of California appeared to benefit most in terms of their attitudes from participating in the program.

Fighting and hitting behavior decreased for all clients, but particularly so for clients living in Southern California. Clients living in the Greater Bay Area experienced the next-highest reductions in fighting behavior.

When examining change from virgin to nonvirgin sexual status, clients in the Greater Bay Area experienced the largest increase in nonvirginity across the program period (21%). Clients in Northern and Central California had modest percentages of clients initiate sexual intercourse (13% and 11%, respectively), and clients in the Los Angeles area and in Southern California had a relatively small percentage of clients lose their virginity during the program period (8% and 9%, respectively). Thus, clients in the Los Angeles area and surrounding coastal

counties and clients in the southern counties of California benefited most from the program in terms of delaying the onset of sexual relations.

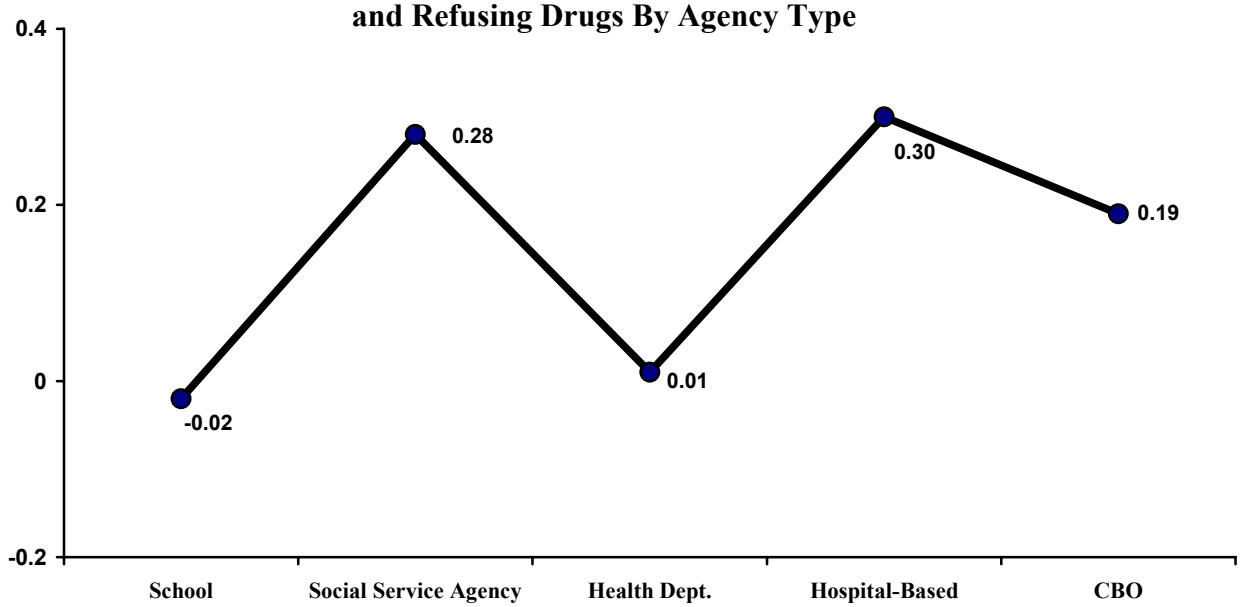
Site Patronage

Change scores were also associated with type of site agency for several outcomes. For example, clients from community-based organizations, hospital-based sites, and health department-based sites all showed increases in parent-teen communication about sexual and contraception issues across the program period, whereas clients served through school-sites decreased their communication with parents and adults. Clients served through hospital-based sites and social service agencies showed significantly large increases in reported ease of refusing sexual advances, whereas clients served through health departments actually decreased their reported ease of refusing sexual advances. Regarding ease of refusing drugs, clients served through social service agencies and CBOs reported large increases in their ease of refusing drugs, whereas clients served through schools actually reported decreases in their ease of drug refusal. (See Figure 4.14 for change scores associated with perceived self-efficacy of refusing sex and refusing drugs [averaged] by agency type.)

There were also differences with regard to changes in the delinquent behaviors of hitting/fighting and being stopped by the police across the program period for the different site patronages. Clients from all site types -- except hospital-based sites -- experienced significant decreases in hitting and fighting, particularly clients served through school-based sites (shown in Figure 4.15). Being stopped by the police also changed differentially across the various site types, with clients from school-based sites experiencing the most significant drop in this activity from pre-test to post-test.

Change in virgin status also differed significantly depending on the site through which the client was served. Clients served through health departments were least likely to lose their virginity across the program period (8%), whereas almost a quarter of clients served through hospital-based sites lost their virginity from pre-test to post-test (24%) (shown in Figure 4.16). (Data from the hospital-based sites must be interpreted with caution, however, as only 38 clients were in such programs, and only 19 completed the entire post-test survey.) Clients served through schools (14%), social service agencies (14%) and CBOs (16%) all had comparable percentages of clients lose their virginity from pre-test to post-test

Figure 4.14 Change in Clients' Perceived Self-Efficacy at Refusing Sex and Refusing Drugs By Agency Type



Note. Negative change scores reflect decreases in clients' perceived skill from pre-test to post-test; positive change scores reflect increases in clients' perceived skills.

Figure 4.15 Change in Clients' Hitting and Fighting Behavior By Agency Type

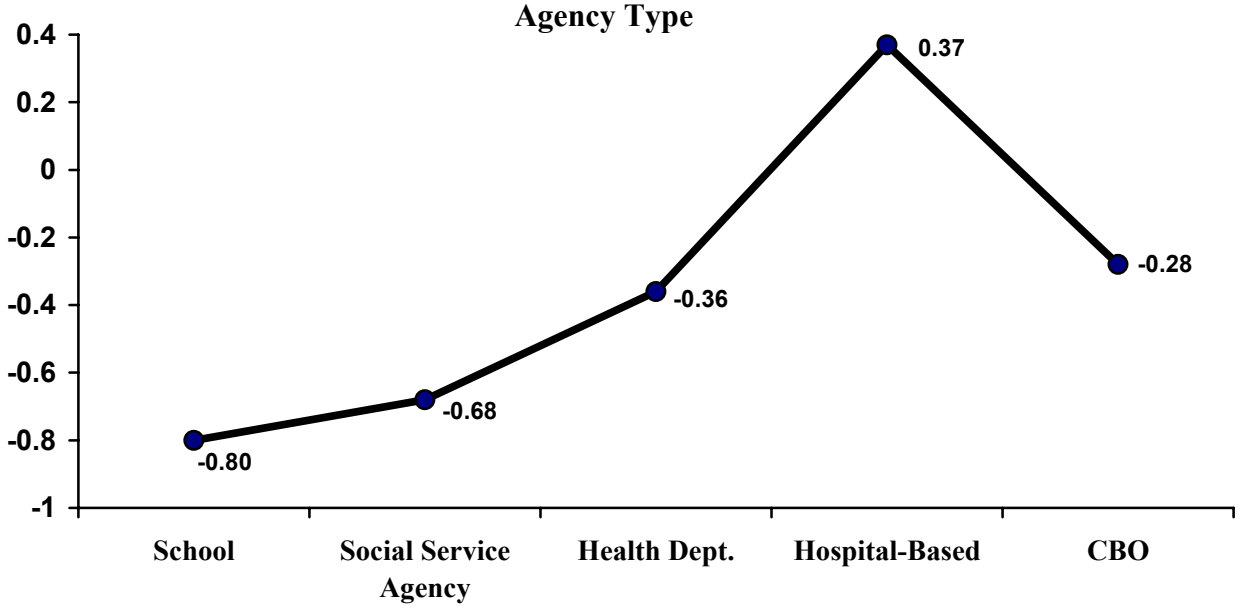
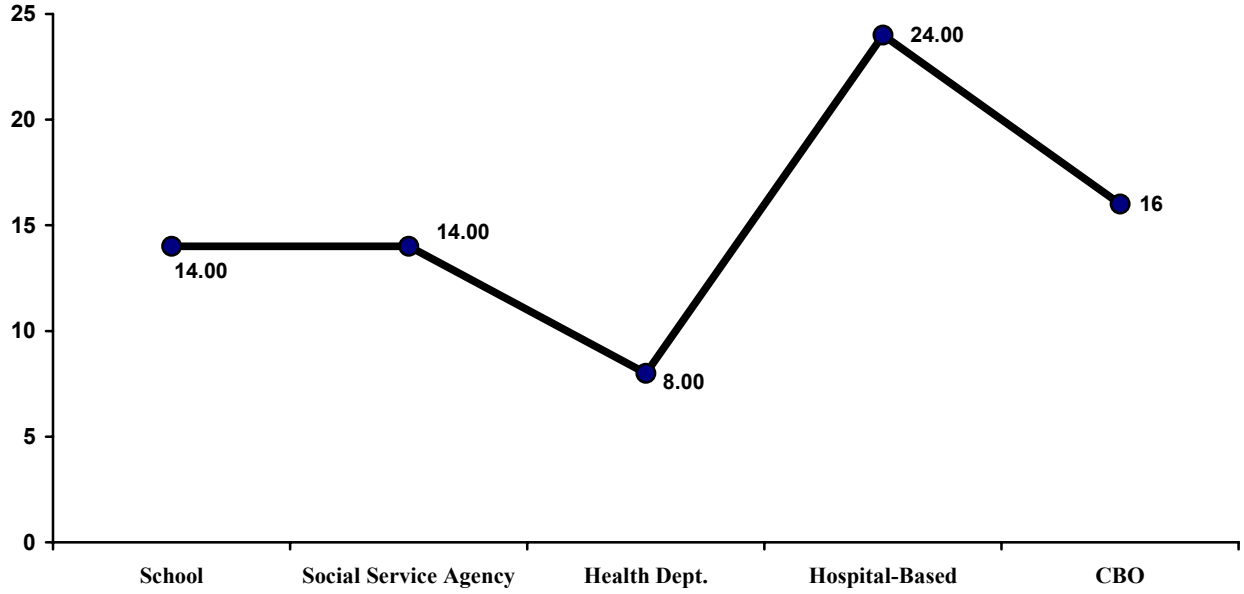


Figure 4.16 Percent of Clients Who Lost Virginity By Agency Type



Locale

Site locale, or whether clients lived in an urban, suburban, or rural area, was associated with only one significant pre-test-to-post-test change score: frequency of sexual intercourse within the previous three months. Clients living in rural areas decreased their frequency of sex across the program period (change score = -2.70), whereas clients from both urban areas (change score = 4.11) and especially suburban areas (change score = 7.00) increased their frequency of intercourse across the program period. Thus, with regard to the frequency of sexual intercourse behavior, the program appears to have been most beneficial for clients residing in rural areas.

Where Services Delivered

Clients received services at varying locations, and some at multiple locations. Sixty eight percent of program clients received services in their homes, 27% received services at the program site office, 27% received services at a community hospital, 27% received services at another type of location (e.g., park, fast food restaurant, etc.), and 2% received services at a community center. (The percentages total more than 100% because some clients received services at multiple locations.) Due to many clients receiving services at multiple locations, and to try to account for this, place of service was broken down into four categories: site office only (195 clients, or 19%), client's home only (409 clients, or 41%), other locations only (126 clients, or 12%; includes community center, school, park, or hospital), and a combination of locations (279 clients, or 28%).

There were associations between where services took place and change in outcome from pre-test to post-test for clients' school attitudes and clients' perceived likelihood of graduating from high. Specifically, clients who received services in their homes were the only group not to show a decrease in school attitudes, whereas clients served at all other locations showed a decrease in positive attitudes and expectations about school. In addition, clients who received services at the site office were most likely to show an increase in their perceived likelihood of graduating from high school. Clients served through other locations (e.g., community center, school, park, or hospital) actually showed a decrease in their perceived likelihood of graduating

from high school from pre-test to post-test.

Summary

A table summarizing the site characteristics associated with favorable change across the program period is shown in Table 4.9. As a whole, site patronage (or type of agency delivering the program) was most closely related to client change. Notable findings were that school-based sites were most likely to yield decreases in delinquent-type behavior (such as hitting, fighting, and being stopped by the police), whereas social service agencies and hospital-based sites were linked with increases in clients' perceived skill at refusing sexual relations and refusing drugs. Clients served through health departments were least likely to lose their virginity from pre-test to post-test and most likely to show increases in parent-teen communication.

Where services were delivered also was associated with some indices of client change, with clients served at the agency office most likely to increase their perceptions about the likelihood of graduating high school. As a whole, these findings suggest that characteristics of the site (such as locale, region, and site patronage) as well as where services are delivered all contribute to select program outcomes and should be considered in an intervention plan.

Table 4.9 Summary of Site Characteristics Associated With Favorable Change Across the Program Period

Site Characteristic	Most Likely to Show
Northern and Southern regions	Decreases in permissiveness in sexual-Childbearing attitudes
Southern and Greater Bay Area regions	Decreases in hitting/fighting behavior
Los Angeles area and Southern California	Fewest clients initiate intercourse
CBOs and Hospital-based sites	Increases in parent-teen communication
Social Service Agencies and Hospital-sites	Increases in perceived ease of refusing sex and Drugs
School-based sites and Social Service Agencies	Decreases in hitting/fighting
School-based sites	Decreases in being stopped by police
Health Department-sites	Fewest clients initiate intercourse
Rural areas	Decrease in frequency of sexual intercourse
Services delivered at site office	Increases in perceived likelihood graduate high School

D. Program Satisfaction and Links to Outcomes

Program satisfaction was measured with a scale consisting of six items assessing overall program satisfaction, frequency of communication with adult relatives about issues in pregnancy prevention, and pregnancy intentions. Likert scale scores ranged from one (1) to five (5), with higher scores indicating higher levels of program satisfaction or positive change due to program involvement, as reported by the program clients.

Eighty percent (80%) of all program clients completed the program satisfaction form (or 813 of 1011 program clients). The mean scores for each item are as follows:

Table 4.10 Mean Scores for Program Satisfaction

Item (paraphrased)	Mean Score	*SD*
1. How much did you like this program?	4.53	0.78
2. Overall program satisfaction	3.34	0.67
3. Importance of program to you.	4.37	0.78
1. Since being in program, talked more with adult relative about sex, birth control, peer pressure, STDs?	3.23	1.12
2. Program helped me see that it's a good idea to wait till older to get pregnant.	4.39	0.82
3. Since being in program, likelihood you will wait to get pregnant.	4.41	0.89

The following tables indicate the frequency of responses to each item. As shown in Table 4.11, two-thirds of all respondents liked the ASPP program "very much" (the highest possible rating). Overall satisfaction was "good" or "excellent" for 91% of clients, and the program was "very important" for 52% of the sample.

Table 4.11 Frequency of Responses: How much did you like this program?

Response	Frequency	Percent
Very much	534	65.7
Somewhat	209	25.7
Unsure	42	5.2
Not a lot	22	2.7
Not at all	6	.7
Total	813	100.0

Table 4.12 Frequency of Responses: Overall Program Satisfaction

Response	Frequency	Percent
Excellent	360	44.4
Good	377	46.5

Average	67	8.3
Poor	7	.9
Very poor	0	0.0
Total	811	100.0

Table 4.13 Frequency of Responses: Importance of Program

Response	Frequency	Percent
Very important	419	51.6
Somewhat important	305	37.6
Neither important nor unimportant	61	7.5
Not very important	23	2.8
Not at all important	4	.5
Total	812	100.0

As shown in Table 4.14, 38% of clients reported that they "talked much more" or "more" with parents or adult relatives or guardians about issues of pregnancy prevention since being in the program.

As shown in Table 4.15, 86% of the program clients agreed that the program helped them "see that it would be a good idea to wait until (they are) older to get pregnant or get someone pregnant." Nearly two-thirds (61.3%) of all clients felt that they were "much more likely to wait" to get pregnant or get someone pregnant since being in the program, and almost a quarter of clients surveyed (24%) believed that they were "more likely" to wait to get pregnant (shown in Table 4.16) Thus, 85% of program clients reported intending to delay pregnancy as a result of the program.

Table 4.14 Frequency of Responses: Since being in program, talked more with parent about sex, birth control, peer pressure or STDs?

Response	Frequency	Percent
Talked much more	112	13.9
Talked more	194	24.0
Talked about the same	355	44.0
Talked less	58	7.2
Talked much less	88	10.9
Total	807	100.0

Table 4.15 Frequency of Responses: Program helped me see that it's a good idea to wait till older to get pregnant.

Response	Frequency	Percent
Strongly agree	456	56.2
Agree	242	29.8
Neither agree nor disagree	91	11.2
Disagree	17	2.1
Strongly disagree	6	.7
Total	812	100.0

Table 4.16 Frequency of Responses: Since being in program, likelihood you will wait to get pregnant.		
Response	**Frequency**	**Percent**
Much more likely to wait	496	61.3
More likely to wait	195	24.1
About the same	89	11.0
Less likely to wait	14	1.7
Much less likely to wait	15	1.9
Total	809	100.0

Program satisfaction varied by gender for five of the six items, with females indicating overall greater satisfaction and positive change as a consequence of their participation in the program. The mean scores by gender are displayed in Table 4.17.

Figure 4.17 Mean Scores for Program Satisfaction By Gender		
Item (paraphrased)	**Males**	**Females**
How much did you like this program?***	4.35	4.65
Overall program satisfaction***	3.21	3.43
Importance of program to you.***	4.22	4.47
Since being in program, talk more with adult relative About sex, birth control, peer pressure, STDs?	3.17	3.27 (ns)
Program helped me see that it's a good idea to wait to get Pregnant.*	4.31	4.43
Since being in program, likelihood I will wait to get Pregnant.*	4.33	4.47

* Probability level < .05. *** Probability level < .001. *ns* = not significantly different.

When comparing reported program satisfaction for the racial/ethnic groups of White, Black, Hispanic, and Other, program satisfaction did not differ by race/ethnicity. Program satisfaction also did not differ by site (with clients from all of the 16 evaluation sites equally satisfied with the program), by locale (e.g., whether a site was urban, suburban, or rural), or region of the state in which the site was located. There was also no significant association between the duration of enrollment in ASPPP and program satisfaction. Program clients who were younger at pre-test, however, reported greater levels of satisfaction with the program than did older participants.

When examining links between program satisfaction and youth outcomes, high program satisfaction was significantly associated with many favorable program outcomes at post-test. For example, high program satisfaction was highly associated with definite intentions to remain abstinent at post-test, positive school attitudes, conservative sexual and childbearing attitudes, intentions to delay sexual relations, intentions to delay childbearing, positive intentions to use contraception if or when sexually active, positive self-esteem, and frequent parent-teen communication about sex and contraception. In addition, high program satisfaction was significantly associated with gains in perceived self-efficacy at refusing sex, increased sensitivity to the costs incurred from early parenting, and decreases in school problems, drug and alcohol use, delinquent behaviors, and cumulative problem behaviors.

Regarding clients' sexual outcomes, high program satisfaction was significantly associated with being a virgin at post-test, using contraception at last sexual intercourse, a significantly lower likelihood of experiencing a pregnancy by post-test (probability level < .001), and an older age at pregnancy (for those who became pregnant) as reported at post-test (probability level < .05).

Finally, correlations were computed between program satisfaction and numerous service variables, including the following: total services received across all 18 categories of focus, total services within the four domains of school-job skills, sexuality-health issues, psychosocial issues, and activities, and total services within each mode of service (i.e., case management, group work, mentoring, etc.

Only one significant relationship was found: clients who received many services related to "other" foci had higher program satisfaction (not categorized elsewhere on the service tracking form). There was a similar finding bordering on significance, with clients who received more services in the form of "group activities" having higher program satisfaction than clients who received services in individual case management or other one-on-one modes of service

Summary

Most clients liked this special sibling program very much and reported that they benefited from participating. Moreover, many associations were revealed between those who liked the program and favorable program outcomes, such as a reduced likelihood of becoming pregnant and strong intentions to remain abstinent during the teenage years.

II. Summary and Conclusions

The results of the evaluation of the Adolescent Sibling Pregnancy Prevention Program are summarized below. There are two important points to bear in mind when considering these results. First, the program period that was evaluated was relatively short, or only nine months. Thus, change in clients' attitudes and behaviors must be considered within this very short timeframe. Second, all individuals included in the evaluation were the siblings of pregnant and parenting teens, and thus, known to be at very high risk of an early pregnancy themselves. The risks for this group are likely present both in youth's environment (i.e., within-family risk factors such as parents' permissive or neglectful parenting, and neighborhood conditions, such as poverty, lack of job opportunities, and community norms accepting of early and unwed pregnancy and parenting), and result directly from the teenage pregnancy and parenting of the youth's sibling (i.e., effects on the teen and on his or her family). Thus, change in clients' attitudes and behaviors should be considered within youths' immediate family environment, that of having (at least one) pregnant or parenting teenage sibling.

Findings of the evaluation indicated many favorable outcomes of program clients relative to comparison group subjects. Most notable was the significantly lower pregnancy rate of program clients (2.7%) compared to that of the comparison group (5.3%). This finding emerged net of differences in youth's background characteristics and when holding constant receipt of outside, non-ASPPP services. In addition, the pregnancy rate of females in the program group (4%) was meaningfully lower than that of females in the comparison group (7.5%). Very few

males caused a pregnancy during the evaluation period (or only five males) and, thus, group differences in their pregnancy rates were less likely to emerge. When including the clinically important group of teens who were unsure of their pregnancy status at post-test, only 3.2% of program clients had a definite or a possible pregnancy at post-test, compared to 6.4% of comparison group subjects. In addition, 25% of program clients were age 14 or younger at a definite or possible pregnancy, whereas 36% of comparison group subjects were age 14 or younger at a definite or possible pregnancy. **Thus, program services were effective at preventing teen pregnancies and especially at preventing pregnancies and pregnancy scares among very young teens, or those ages 14 or younger.**

The percentage of youth who lost their virginity during the program period is an important indicator of program effectiveness. Young age at sexual onset is a known risk factor for teen pregnancy; thus, if program services can delay teens' sexual initiation, teenage pregnancy is more likely to be avoided or at least delayed. The percentage of youth who lost their virginity during the program period was lower for females in the program (11%) than for females in the comparison group (18%). Differences did not emerge for males, however, with 14% of males in the program and 17% of males in the comparison group losing their virginity from pre-test to post-test. **Thus, the program served to prevent virgin females from initiating sexual relations during the course of the evaluation, but was less effective at preventing virgin males from starting sexual relations.** This latter area represents a program challenge that may need to be addressed in the future.

Regarding youth's risk behaviors and permissive attitudes, **female clients appeared to benefit more in terms of their attitudes and behaviors than male clients**. Specifically, at post-test, female clients were significantly more intent on remaining abstinent and they engaged in less gang activity than females in the comparison group. In contrast, at post-test, male clients had lower self-esteem, lower intentions to remain abstinent, and engaged in more gang activity than males in the comparison group. This again may represent a challenge for future program efforts.

The receipt of supplemental non-ASPPP pregnancy prevention services among program clients (i.e., services received within school, at the YMCA, at Boys and Girls Clubs, etc.) significantly benefited program clients. Clients who received additional services outside of ASPPP had several favorable outcomes relative to program clients who did not receive such supplemental services or to comparison group subjects. **This is an important finding which likely reflects the added benefit of receiving consistent services across multiple contexts. This finding may also reflect the potential added benefit of expanding ASPPP services, both in terms of time spent per client and expanding the context of service delivery (e.g., providing "saturated"services across many domains, such as at school, community centers, youth clubs, etc.).**

This evaluation also identified several types of services that were particularly effective at enhancing specific client outcomes. Of note, is **that individualized case management services were particularly effective at preventing pregnancy** (most likely by means of increasing use of effective –as opposed to noneffective -- means of birth control), **whereas group service activities were particularly effective at deterring the onset of sexual relation**s. Each outcome is desirable and each service could be utilized to produce the desired effect. Other associations were also found between specific outcomes and youth's characteristics (e.g., age, gender) and type of agency delivering the service. These relations identify who benefits most from the program and in what ways they benefit.

Finally, it is important to note **that most program clients liked the program very much**. This is reflected in both the high program satisfaction ratings, as well as the very low dropout that occurred across the evaluation period: only 6% of program clients dropped out of the program during the evaluation. Moreover, most clients rated the program as very important to them, and most clients thought that it helped them understand the importance of waiting to get pregnant. These findings in and of themselves are very important indicators of program success and highlight the fact that youth are responding positively to this program.

Strengths and Limitations of the Evaluation

In assessing the sibling program, it is important to recognize the strengths and weaknesses of this evaluation. Perhaps the most significant limitation of this evaluation was the brevity of time it covered in teens' lives. It would have been desirable to have more assessment points and over a longer period of time. This kind of approach would have revealed more accurately youth change as a result of program participation. A longer timeframe of study would have also indicated the potential long-term effects of program participation with, for example, reduced pregnancy rates for program clients *across* the teenage years, (i.e., during middle and late adolescence, when most teenage pregnancies occur). In addition, some program outcomes were not fully realized within the current evaluation timeframe (e.g., school dropout rates, high school graduation rates, college attendance, etc.).

The fact that individuals were not randomly assigned into the program and comparison group was also a limitation. It is possible that individuals recruited into the program were at a different level of risk for pregnancy than those represented in the comparison group. A random method of assigning individuals into a served or non-served group would have been preferable.

The evaluation sample was also predominantly Hispanic/Latino, and program effects should be considered for the kinds of individuals represented in the current evaluation sample. Different program outcomes may have resulted if a different population was served, and caution should be exercised when generalizing beyond the kinds of individuals represented in the current evaluation sample.

Certainly the strength of this evaluation study was the fact that both program clients and comparison group subjects were the siblings of pregnant and parenting teens. Moreover, youth in the program and comparison groups had an equivalent number of teenage pregnant and parenting siblings. Thus, the presumably higher risk associated with having many pregnant and parenting teenage siblings was not an issue in this study.

In addition, all analyses carefully controlled for the differences found at pre-test between individuals in the program group and individuals in the comparison group. Thus, program findings cannot be attributed to factors related to a number of youth background characteristics (e.g. age, race, ethnicity, family income, family welfare receipt, language spoken in the home, etc.) or to participation in other, non-ASPPP services received across the evaluation period. Rather, the group differences found very likely represent true program effects.

In summary, and noting the strengths and limitations of this evaluation study, it appears

that the Adolescent Sibling Pregnancy Prevention Program was effective at reducing the adolescent pregnancy rate and several pregnancy-risk behaviors within this high-risk sample of siblings of pregnant and parenting teens.

References

Alan Guttmacher Institute (1994). Sex and America's teenagers. New York, NY: Author.

Centers for Disease Control and Prevention (1998). Youth risk behavior surveillance – United States, 1997. Morbidity and Mortality Weekly Report, 47, 1-91.

Cox, J., Emans, S.J., & Bithoney, W. (1993). Sisters of teen mothers: Increased risk for adolescent parenthood. Adolescent and Pediatric Gynecology, 6, 138-142.

DiClemente, R. J., Lodico, M., Grinstead, O. A., Harper, G., Rickman, R. L., Evans, P. E., & Coates, T. J. (1996). African-American adolescents residing in high-risk urban environments do use condoms: Correlates and predictors of condom use among adolescents in public housing developments. Pediatrics, 98, 269-278.

East, P.L. (1996a). Do adolescent pregnancy and childbearing affect younger siblings? Family Planning Perspectives, 28, 148-153.

East, P.L. (1996b). The younger sisters of childbearing adolescents: Their attitudes, expectations, and behaviors. Child Development, 67, 267-282.

East, P.L. (1998a). Breaking the cycle of teenage pregnancy: Prevention opportunities focusing on the younger sisters of teen mothers. Education and Urban Society, 30, 157-171.

East, P. L. (1998b). Impact of adolescent childbearing on families and younger siblings: Effects that increase younger siblings' risk for early pregnancy. Applied Developmental Science, 2, 62-74.

East, P. L. (1999). The first teenage pregnancy in the family: Does it affect mothers' parenting, attitudes, or mother-adolescent communication? Journal of Marriage and the Family, 61, 306-319.

East, P.L. (in press). Pregnancy prevention opportunities focusing on younger sisters of the childbearing teens. In D. Stokols & M. Jamner (Eds.), Promoting human wellness: New frontiers for research, policy, and practice. Berkeley, CA: University of California Press.

East, P.L., & Felice, M.E. (1992). Pregnancy risk among the younger sisters of pregnant and childbearing adolescents. Journal of Developmental and Behavioral Pediatrics, 13, 128-136.

East, P.L., Felice, M.E., & Morgan, M.C. (1993). Sisters' and girlfriends' sexual and childbearing behavior: Effects on early adolescent girls' sexual outcomes. Journal of Marriage and the Family, 55, 953-963.

East, P.L., & Jacobson, L.J. (2000a). Adolescent childbearing, poverty, and siblings: Taking new direction from the new literature. Family Relations, 49, 241-246.

East, P.L., & Jacobson, L.J. (2000b). The younger siblings of teenage mothers: Do their pregnancy risk behaviors increase with age? (under review).

East, P.L., & Shi, C.R. (1997). Pregnant and parenting adolescents and their younger sisters: The influence of relationship qualities for younger sister outcomes. Journal of Developmental and Behavioral Pediatrics,18,19-25.

Friede, A., Hogue, C.J., Doyle, L., et al., (1986). Do the sisters of childbearing teenagers have increased rates of childbearing? American Journal of Public Health, 76, 1221-1224.

Goldfarb, J.L., Mumford, D.M., Schum, D.A., et al., (1977). An attempt to detect "pregnancy susceptibility" in indigent adolescent girls. Journal of Youth and Adolescence, 6, 127-144.

Hogan, D.P., & Kitagawa, E.M. (1985). The impact of social status, family structure, and the

Kirby, D. (1997). No easy answers: Research findings on programs to reduce teen pregnancy. Washington, D.C.: The National Campaign to Prevent Teen Pregnancy.

Kirby, D. (2000). Reasons for hope: Research findings on programs to reduce teen pregnancy. (Forthcoming.). Washington, D.C.: The National Campaign to Prevent Teen Pregnancy.

Miller, B. C. (1998). Families matter: A research synthesis of family influences on adolescent pregnancy. Washington, D.C.: The National Campaign to Prevent Teen Pregnancy.

Moore, K. A., Miller, B. C., Glei, D., & Morrison, D. R. (1995). Adolescent sex, contraception, and childbearing; A review of recent research. Washington, D.C.: Child Trends, Inc.

Moore, K. A., Sugland, B. W., Blumenthal, C., Glei, D., & Snyder, N. (1995). Adolescent pregnancy prevention programs: Interventions and evaluations. Washington, D.C.: Child Trends, Inc.

Peterson, J., Card, J. J., Eisen, M., & Sherman-Williams, B. (1994). Evaluating teenage pregnancy prevention and other social programs: Ten stages of program assessment. Family Planning Perspectives, 26, 116-31.

Spingarn, R. W., & DuRant, R. H. (1996). Male adolescents involved in pregnancy: Associated risk and problem behaviors. Pediatrics, 98, 262-268.

Zabin, L. S., Emerson, M. R., Ringers, P. A., & Sedivy, V. (1996). Adolescents with negative pregnancy test results: An accessible at-risk group. Journal of the American Medical Association, 275, 113-117.

Zabin, L. S., Hirsch, M. B., & Bocia, J. A. (1990). Differential characteristics of adolescent pregnancy test patients: Abortion, childbearing and negative test groups. Journal of Adolescent Health Care, 11, 107-113.

Zimmerman, R. S., Sprecher, S., Langer, L. M., & Holloway, C. D. (1993). Adolescents' perceived ability to say no to unwanted sex. Journal of Adolescent Research, 10, 383-399.

Appendices

Appendix Table A.1 The Evaluation Sites[⊥]	
County of Site	**Auspice**
1. Alameda County	East Bay Perinatal Council
2. Fresno County	Fresno County Department of Social Services
3. Kern County	Clinical Services Sierra Vista
4. Kings County	Kings County Community Action Organization, Inc.
5. Los Angeles County	El Nido Family Centers
6. Los Angeles County	Foothill Family Service
7. Orange County	Orange County Health Care Agency
8. Sacramento County	Sutter Memorial Hospital
9. San Diego County	San Diego Unified School District
10. San Francisco County	Family Service Agency of San Francisco
11. San Joaquin County	San Joaquin County Public Health Services
12. San Luis Obispo County	San Luis Obispo County Health Agency
13. Santa Clara County	Santa Clara County Public Health Department
14. Shasta County	Northern Valley Catholic Social Services
15. Tulare County	Tulare County Department of Health Services
16. Ventura County	Ventura County Health Care Agency, Public Health Services

[⊥]Santa Barbara County was originally selected to participate in the evaluation, but the program was transferred to another agency during the evaluation period. Thus, the pre-test data collected on all subjects at this site were excluded from all analyses

Appendix Table A.2 Number of Program and Comparison Subjects By Site				
County of Site	No. of Program Clients	No. of Comparison Group Subjects	Total	% of Total
1. Alameda	26	0	26	1.6%
2. Fresno	77	77	154	9.7%
3. Kern	115	61	176	11.0%
4. Kings	33	35	68	4.3%
5. Los Angeles – El Nido	195	24	219	13.7%
6. Los Angeles – Foothill	48	34	82	5.0%
7. Orange	44	40	84	5.3%
8. Sacramento	38	21	59	3.7%
9. San Diego	76	53	129	8.1%
10. San Francisco	35	10	45	2.8%
11. San Joaquin	57	80	137	8.6%
12. San Luis Obispo	23	10	33	2.1%
13. Santa Clara	20	0	20	1.3%
14. Shasta	25	16	41	2.6%
15. Tulare	73	75	148	9.3%
16. Ventura	126	47	173	10.9%
TOTAL	1011	583	1594	100%

Appenidix: Description of Evaluation Sample at Pre-test

Characteristics of the total evaluation sample at pre-test are shown below in Table A.3. Sixty percent of all evaluation subjects were female (n = 965); 40% were male (n = 629). Subjects were a mean age of 13.7 years (range: 11 – 17 years) and, on average, in the 8th grade (see Figures A.1 and A.2). Most subjects were in school at pre-test (97%), 2% were currently dropped out, and 1% had graduated from high school or received their GED and were not currently enrolled in school. Females were significantly older than males at pre-test (13.8 years and 13.5 years, respectively).

The racial-ethnic composition of the total sample is shown in Table A.3 and Figure A.3. If a subject responded that they were of Hispanic origin, he or she was coded as Hispanic-Latino regardless of race. Southeast Asian subjects included those who described themselves as Vietnamese, Cambodian, Laotian, Thai, or Hmong. Subjects classified as Asian were of Chinese or Japanese descent, or Korean. Pacific Islander subjects included those who were Filipino. As shown in Table A.3, 70% of subjects were Hispanic/Latino, approximately 11% were African American, approximately 10% were Non-Hispanic White, and 9% were of another racial/ethnic background.

Appendix Table A.3 Characteristics of Total Sample at Pre-test (N = 1594)

Average age	13.67 (SD = 1.62; range 11 – 17)	
Average grade+	8.14 (SD = 1.67; range 4th - 12th)	
Gender	**Percent**	**Number**
% Female	60.5%	965
% Male	39.5%	629
Race/Ethnicity:		
Hispanic/Latino	70.4%	1123
African American	10.9%	173
White Non-Hispanic	9.8%	156
Southeast Asian	4.4%	70
Mixed Race	2.2%	35
Native American	0.9%	14
Asian	0.3%	5
Pacific Islander	0.2%	3
Other	0.8%	13
No response	0.1%	2
Total	100.0%	1594
Sibling in Cal-Learn	47%	
Sibling in AFLP	43%	
Sibling in ASPPP	64% (of all program clients)	
Family ever received governmental aid	81%	
Family receiving aid at pre-test	66%	
Subjects' mothers' average educational level	9th	
Subject's mother married at pre-test	50%	
Subject lives in one-parent family	52%	
Mean No. pregnant teenage sisters	1.31 (range 0 - 8)	
Mean No. parenting teenage sisters	1.26 (range 0 - 8)	
Mean No. of brothers who impregnated as teenager	0.21 (range 0 - 5)	

+ Included only those subjects who were enrolled in school at pre-test.

Figure A.1 Age of Evaluation Subjects

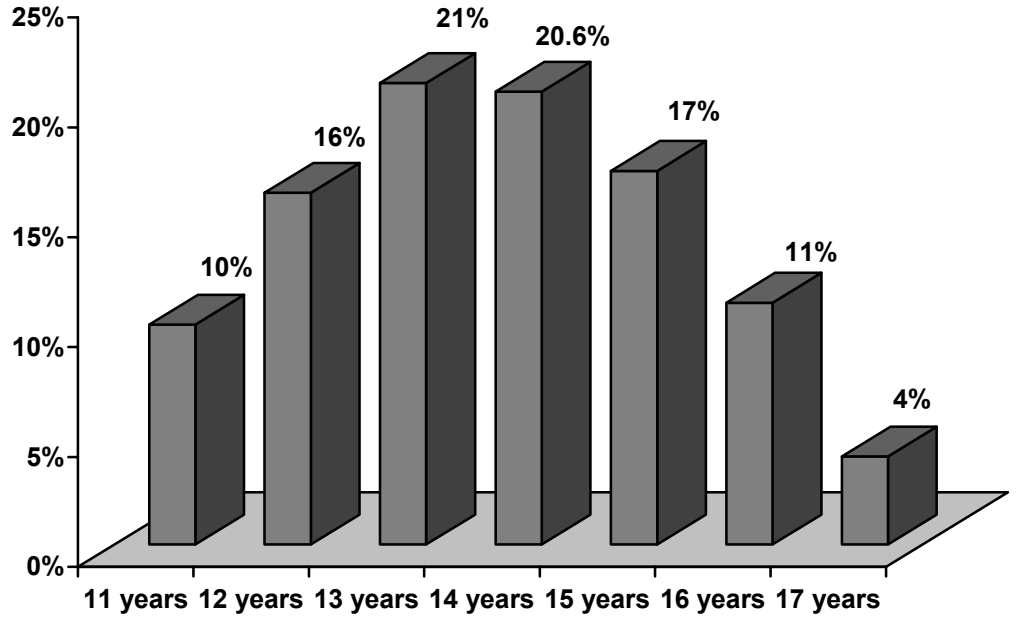


Figure A.2 Grade Level and School Status of All Evaluation Subjects at Pretest

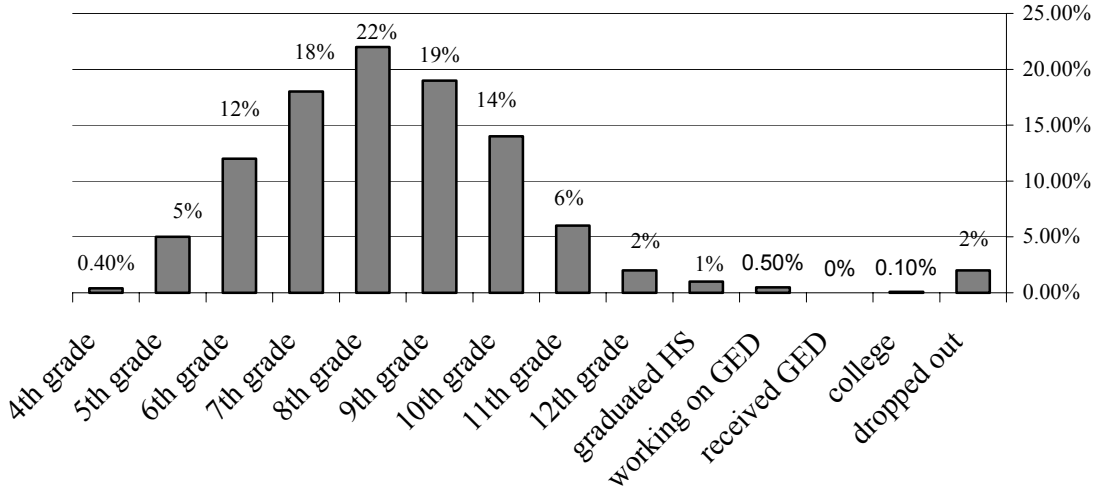
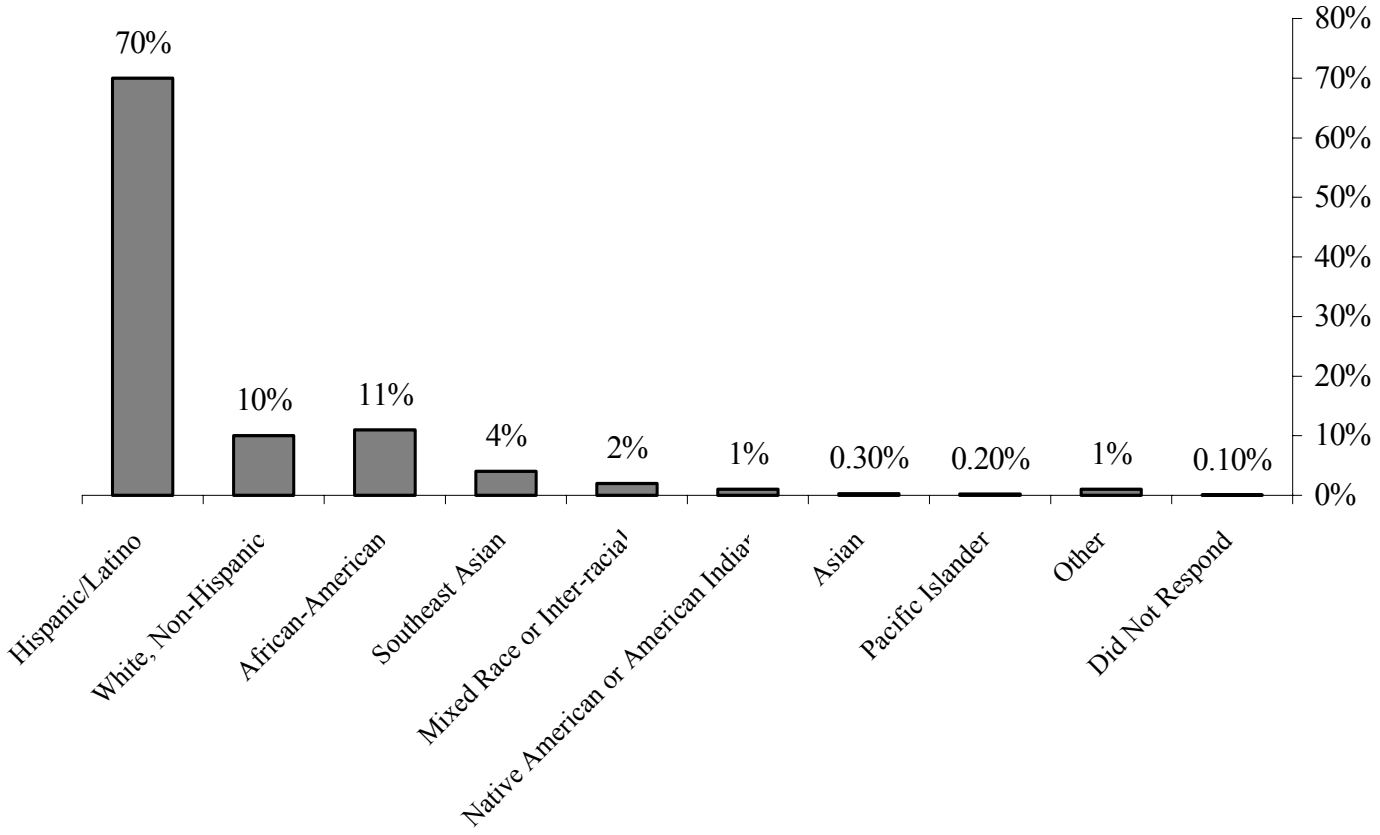


Figure A.3 Racial/Ethnic Composition of Total Sample at Pretest



A summary of the evaluation sites' region, locale, and patronage is shown below (in Appendix Table A.4). As evident from this table, most evaluation sites were located within the Central Valley region of California, within urban locales, and within county health departments or social service agencies.

Forty-seven percent of subjects had a sibling in Cal-Learn, and 43% had a sibling in AFLP. (Ten percent of subjects did not respond to this question). Sixty-four percent of program clients reported that they also had a sibling enrolled in ASPPP. Eighty-one percent of subjects' families had at some time received some kind of governmental assistance, and 66% of subjects' families were receiving governmental aid at pre-test.

Appendix Table A.4 Region, Locale, and Patronage of All Evaluation Sites								
Region	**No. of Sites**	**%**	**Locale**	**No. of Sites**	**%**	**Patronage**	**No. of Sites**	**%**
Northern	2	12.5%	Urban	10	62.5%	Health department	6	37.5%
Central Valley	5	31%	Rural	4	25%	Social service agency	6	37.5%
S.F. Bay	3	19%	Suburban	2	12.5%	CBO	2	12.5%
L.A.+ surr.	4	25%	Total	16	100%	Hospital	1	6.3%
Southern	2	12.5%				School	1	6.3%
Total	16	100%				Total	16	100%

The mean educational level of subjects' mothers was the 9th grade, and the average age of subjects' mothers at their first childbearing was 19 years. Approximately half of subjects' mothers were not married at pre-test (49%; divorced, never married, or separated), and half were married at pre-test (including common-law marriages). Fifty-two percent of subjects reported living with one parent only, and 44% of subjects reported living with two parents (biological, step-, or adoptive). Three percent of subjects lived with a grandparent (or grandparents) and no parents, and one percent had an "other" parental living arrangement.

Youth participating in the evaluation had an average of 2.7 sisters (range 0-14) and 1.8 brothers (range 0-10). Family size varied by race-ethnicity, with Southeast Asians having significantly more sisters (3.6) and more brothers (2.9) than Hispanics (2.7 sisters, 1.8 brothers), African Americans (2.7 sisters, 1.8 brothers), and Non-Hispanic Whites (2.3 sisters, 1.3 brothers).

Most subjects had at least one pregnant sister (97%), a quarter of subjects had two or more pregnant sisters, and almost 6% of subjects had three or more pregnant sisters. The average number of pregnant or parenting teenage sisters for all subjects was 1.3.

Fifteen percent of subjects had one or more brothers who impregnated someone as a teen, and 3% had two or more teenage impregnating brothers. The average number of teenage impregnating brothers was 0.2 for the total sample. (The term "impregnation" is used deliberately here. The question asked of youth was "how many of your brothers have gotten someone pregnant when they were age 19 or younger?" Number of brothers who impregnated someone is more inclusive than those who fathered a child because many pregnancies do not result in a live birth. However, it is recognized that siblings may not be fully aware of whether their brothers got someone pregnant as a teen or the number of pregnancies caused by their brothers.)

Subjects' Sexual Behavior at Pre-test

Regarding subjects' sexual behavior at pre-test, 17.4% of subjects reported having had voluntary sexual intercourse, with equivalent percentages of females (17.9%) and males (16.7%) indicating that they had sex (see Appendix Table A.5 below). For those who reported having had sex (n = 278), the mean age at first intercourse was 13.7 years (range 7 - 17). Males (13.4) were younger at first sex than were females (13.8 years). Within the previous three months, clients had had sexual intercourse an average of 3 times. Within their lifetimes, youth reported that they had sexual intercourse an average of 11 times. Males and females did not differ in the number of

times they had had sex during their lifetime or during the last three months. Regarding the number of sexual partners, (nonvirgin) subjects reported an average of 2.7 partners (range 1 - 40) within their lifetimes. This differed by gender, with males reporting significantly more sexual partners (3.6) than females (2.1).

Appendix Table A.5 Sexual Behavior of Total Sample at Pre-test	
Ever had voluntary intercourse	17.4%
Males	16.7%
Females	17.9%
Average age at first intercourse	13.7 years
Males	13.4 years
Females	13.8 years
Frequency of intercourse:	
Within previous three months	3.1 times
Within lifetime	11.1 times
Number of sexual partners	2.7
Males	3.6
Females	2.1
Never use contraception	12%
Always use contraception	47%
Method used most often:	
Condoms	58%
Birth control pills	8%
Depo Provera	6%
Withdrawal	5%
Ever had a sexually transmitted disease	1.3%

Of subjects who had had voluntary sexual intercourse, 12% had never used "anything so you or your partner would not get pregnant"; 4% used something rarely, 15% used something sometimes, 17% used something most of the time, and 47% reported using something at every intercourse. At first intercourse, 21% of subjects did not use any form of contraception, and at the most recent intercourse, 19% of subjects did not use any contraception. The most common methods of birth control were condoms (used by 58% of sexually active subjects), birth control pills (8%), Depo Provera (6%), and withdrawal (5%).

Twenty individuals (17 females, 3 males, or 1.3% of the total sample) reported having had a sexually transmitted disease, with chlamydia the most common STD (reported by 11 respondents). There were two cases of gonorrhea, one case of herpes, one case of genital warts, one case of HIV infection, and two subjects did not know the exact diagnosis of their STD.

There were extensive racial-ethnic differences in subjects' sexual behavior. White subjects consistently had the highest nonvirgin rates (27%), the youngest ages at first sex (13.0 years), the most frequent sex (4 times within the last three months), and the most sexual partners (4.3). Southeast Asian subjects had the least frequent use of contraception (rarely-to-sometimes), and were least likely to use contraception at first or last intercourse. Older subjects were significantly more likely to have had voluntary sexual intercourse.

Subjects also completed a problem behavior checklist of behavior that they had tried or done within the last three months. The percentage of respondents who indicated that they had done the behavior at least once is shown below. Whether males and females differed in that behavior is also indicated.

Appendix Table A.6	Problem Behavior Engaged In Within Previous Three Months of Pre-test
35%	Got suspended or expelled (*males twice as likely*)
27%	Smoked cigarettes (*females more likely*)
39%	Drank beer, wine, or liquor
23%	Smoked marijuana
6%	Used drugs other than marijuana, such as crack or cocaine
55%	Hit someone or got into a fistfight (*males much more likely*)
14%	Ran away from home or tried to run away from home (*females twice as likely*)
27%	Got stopped by the police (either picked up, questioned, arrested or taken to juvenile hall) (*males twice as likely*)
13%	Been part of a gang or was involved in some kind of gang activity (*males more likely*)

There were also some consistent racial-ethnic differences in problem behavior. When comparing Hispanic, African American, White, and Southeast Asian subjects, Hispanics had the highest truancy rates, ran away from home (or tried to run away from home) most frequently, and had the highest gang involvement. African American subjects were most likely to have been suspended or expelled over the last three months and to have been stopped by the police. White subjects had the most frequent use of cigarettes, alcohol, marijuana, and illicit drugs.

All problem behaviors were associated with youth's age, with older subjects more likely to have engaged in school problems, drug use, and delinquent behavior.

Summary

As a whole, 17% of the evaluation sample (or 278 youth) indicated at pre-test that they had had voluntary sexual intercourse at least once. Males and females had similar nonvirgin rates, but males were slightly younger at first intercourse than were females. Males reported having an average of 1.5 additional sexual partners over their lifetimes than did females (3.6 partners versus 2, respectively), and males engaged in significantly more pregnancy risk behaviors than females. Of those who reported having had sex, subjects reported having had intercourse an average of three times within the last three months and 11 times within their lifetimes. Contraceptive use was moderate, with about two-thirds of sexually active subjects (64%) reporting using contraception most or all of the time.

Of note for the problem behavior is that over half of the sample (55%) had hit someone or gotten into a fistfight at least once within the last three months. Also noteworthy is that almost 40% of the sample had drunk beer, wine, or liquor within the last three months, and 14% of subjects (mostly females) had tried to run away or had run away from home within the last three months. Finally, over a quarter of the sample had been stopped by the police within the previous 3 months, with African American males most likely to have been stopped.

Appendix: Items Per Scale and Inter-Item Consistency

The questions on the evaluation questionnaire were written with the intent that some items would cluster to form conceptually meaningful scales. For this evaluation, multi-item scales were most useful for assessing the program's effectiveness in a variety of domains relevant to youth's attitudes, expectations, and behaviors. However, adding items influences the way a scale is interpreted. For multi-item scales, the conceptual span of the scale and the consistency of responses need to be assessed.

Twelve scales, out of 15 possible, had acceptable-to-good inter-item consistency (i.e., subjects responded consistently to the various items of the scale) at both times of testing. Three clusters of items, however, had less than satisfactory internal consistency: the items associated with school attitudes, resistance to drug pressure, and delinquent behavior. These scale scores, then, need to be interpreted cautiously and the individual items of these scales were often analyzed separately in this report.

The items that comprise each scale is shown below, along with the inter-item consistency coefficient. (Coefficients ≥ .56 are generally considered acceptable, and coefficients ≥ .70 are considered good).

Appendix Table A.7 Items Per Scale

Inter-item Consistency		
Pre	**Post**	**Item # on Questionnaire and Item (Paraphrased)**
.51	.59	***School Orientation****
		5. Grades usually get in school.
		6. Likelihood graduate from high school?
		7. Importance go to college or get job training?
.70	.72	***Acceptance of Teenage Sex and Teenage Childbearing***
		8. How feel about teenagers having sex?
		9. People should wait until older to have sex.
		10. Having a baby while in high school is okay.
		11. Teenagers should not have children.
		12. Having a baby without being married is okay.
		13. People should wait until they are married to have children.
.58	.65	***Self-esteem***
		14. I feel pretty good about myself.
		17. I don't feel good about myself. (reversed)
.59	.64	***Perceived Costs of Early Childbearing***
		15. If you had a baby as a teen, how would it be to finish school?
		16. If you had a baby as a teen, how would it be to get a job?
.73	.75	***Parent (or Relative) – Teen Communication (within last three months)***
		• How often have you talked with parent/adult relative about the pressures
		• Youth feel today to have sex?
		18. How often have you talked with parent/adult relative about birth control?

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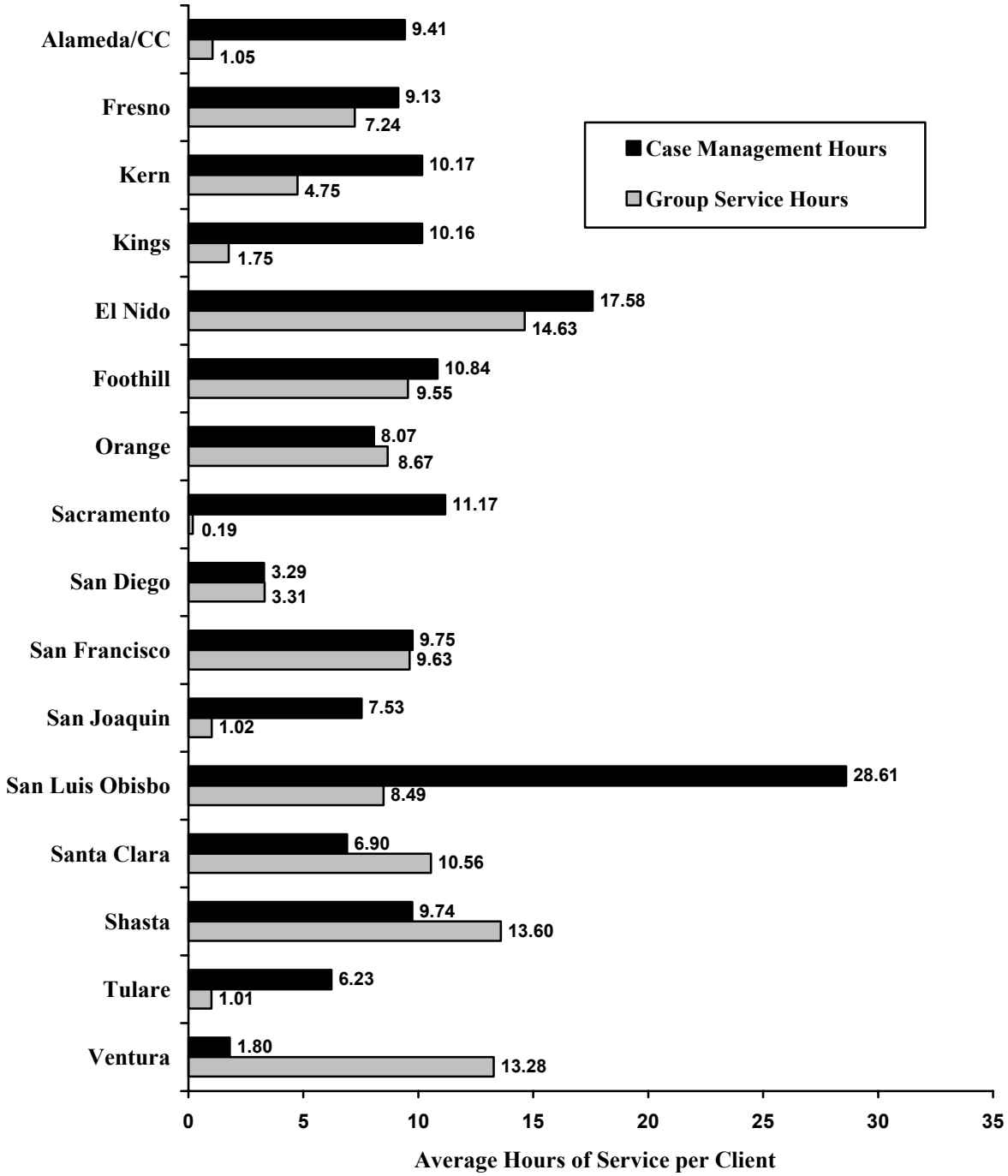
.42	.43	***Resistance to Drug Pressure****
		20. How hard or easy is it for you to refuse to do drugs?
		21. If someone pressured you to do drugs, what would you do?
.56	.64	***Resistance to Sexual Pressure***
		• 22. How hard or easy to refuse sex with a boyfriend/girlfriend?
		• 23. How sure are you that you could stop boyfriend/girlfriend from having sex with you?
.79	.83	***Sexual Intentions***
		24. If a boyfriend/girlfriend tried to have sex with you during the next year, what would you do?
		• 27. How likely is it that you will voluntarily have sex before you are married?
		28. How likely is it that you will voluntarily have sex within the next year?
		29. How likely is it that you will voluntarily have sex while still a teenager?
.68	.76	***Contraceptive Intentions***
		25. If you were to have voluntary sex, would you use a condom?
		26. If you were to have sex, would you use birth control?
.82	.86	***Childbearing Intentions***
		30. How likely is it that you will have a baby while a teenager?
		31. How likely is it that you will have a baby before you get married?
		31. How likely is it that you will have a baby before you get married?
		33. How likely is it that you will get pregnant within the next year?
	.75	***Abstinent Intentions (Post-test only)***
		34. How sure are you that you will not have sex during the next year?
		35. How likely to wait until you are older to have sex again? (asked of nonvirgins only)
.84	.78	***School Problems (frequency within last three months)***
		49. Cut a class
		50. Cut a whole day of school
.82	.75	***Drug/alcohol use (frequency within last three months)***
		52. Smoked cigarettes
		53. Drank beer, wine, or liquor
		54. Smoked marijuana
		55. Used drugs other than marijuana, such as crack or cocaine
.66	.51	***Delinquency (frequency within last three months)****
		56. Hit someone or got into a fistfight
		57. Ran away from home or tried to run away from home
		• 58. Got stopped by the police (either picked up, questioned, arrested or taken to juvenile hall)

		59. Been part of a gang or was involved in a gang activity.
.87	.80	***Total Problem Behaviors (items 49-59)***

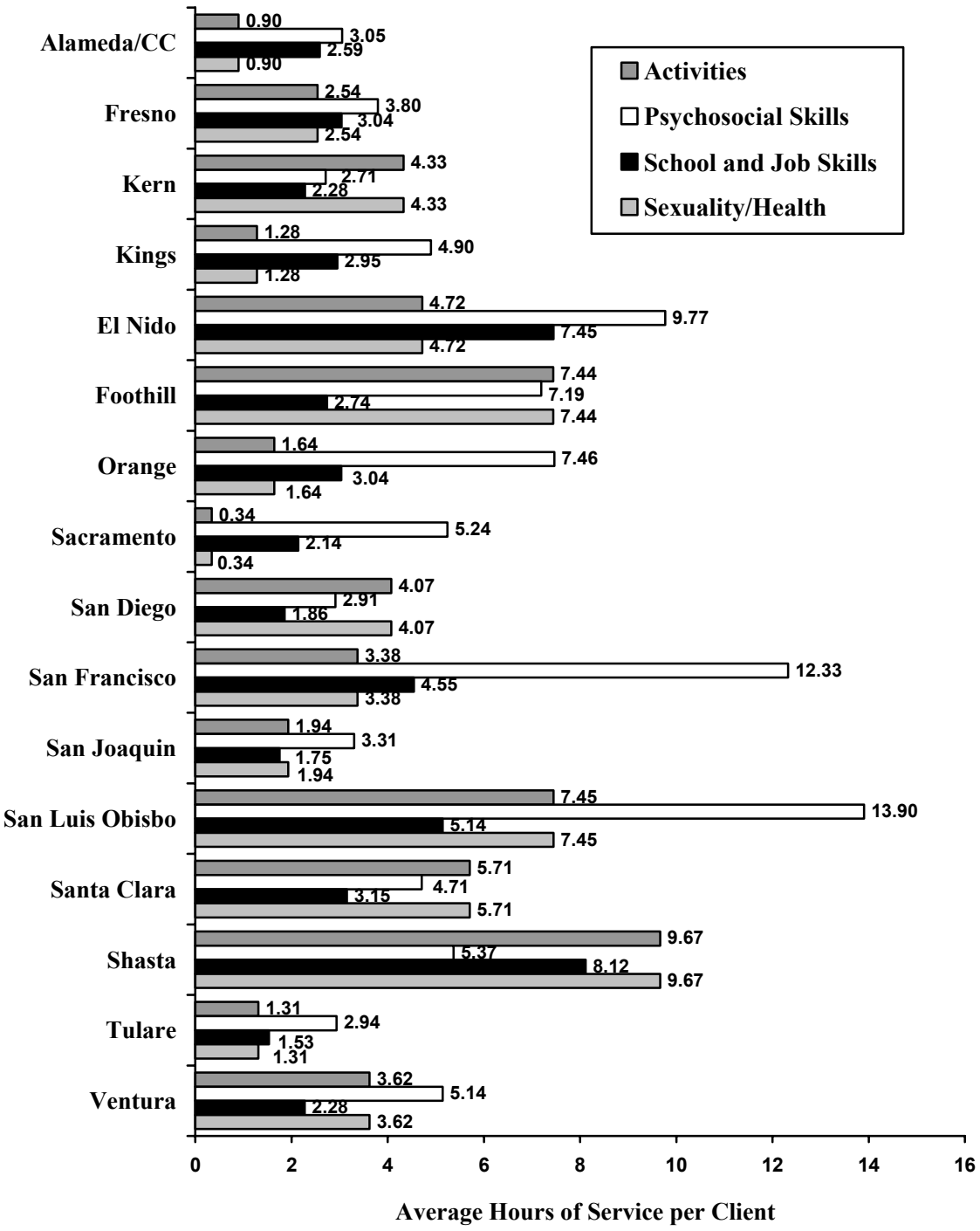
* These clusters of items need to be interpreted cautiously due to low internal reliabilities.

Appendix Figure B.1 Service Hours by Mode, Site Data



*Case Management: F [15, 858] = 36.54, $p < .001$; Group Service F [15, 858] = 20.61, $p < .001$

Appendix Figure B.2 Service Hours by Focus Area, Site Data*



*Activities F [15, 858] = 20.01; Psychosocial Skills: F [15, 858] = 22.13; School and Job Skills: F [15, 858] = 25.30; Sexuality and Health: F [15, 858] = 38.99; p (all) < .001